E-Rate Billing BEAR and SPI Forms

ENA's invoicing system is flexible and will be customized to meet the customer's requirements. Upon award of a contract, the ENA finance team will meet with your staff members to discuss and agree upon invoicing formats and delivery methods. This methodology has proved successful to make invoice review a much more efficient process for our customers.

E-RATE BILLING BEAR AND SPI FORMS

ENA works with districts and libraries to determine a preferred E-Rate billing method:

1. **Service Provider Invoice (SPI) method, Form 474**
2. **Billed Entity Applicant Reimbursement (Bear) method, Form 472**

ENA has significant experience in providing invoices to customers and the SLD using either method, with successful outcomes on behalf of hundreds of customers. ENA will work with you to determine the best SLD-invoicing methodolgy.

SPI METHOD

If the SPI method is utilized:

- **ENA will bill only for the customer's portion of the service cost and ENA invoices USAC for the discounted amount.**
- **This approach allows customers to stabilize their cash outlay while ENA funds any delays from the SLD should they occur.**
- **While ENA has successful experience with both methods of billing, using the discounted invoice Form 474 SPI method might be considered the most beneficial because of the immediate financial benefits this method represents to customers.**

BEAR METHOD

If the BEAR method is utilized, ENA will:

- **Bill 100 percent of the service charges and then assist our customer with preparing the BEAR reimbursement Form 472 for submittal to the SLD.**
- **Monitor the process to ensure the BEAR deadline is not missed, review and certify BEAR forms quickly using the electronic certification process.**
- **Help with invoice deadline extension requests, and offer assistance as requested or required. Additionally, as ENA receives BEAR payments, ENA quickly releases the reimbursement back to customers.**

Furthermore, and unlike many telecommunications vendors, ENA bills for its service at the end of each month after service is completed. Copies of all invoices sent to USAC are maintained and provided upon request. **In summary, we work to make certain our customers receive and maximize the E-Rate funding that they deserve.**

B. Service Level Agreement (Addresses Required Responses Table Item I.b.)

Describe in detail all proposed SLAs for the services listed in the title of this RFP

See below for ENA's sample Service Level Agreement including information and details related to consequences for noncompliance.

This example Service Level Agreement ("SLA") is provided to Sweetwater City Schools and participating Consortium school districts in Sweetwater City Schools RFP# 13-1: Managed Internet Access, VoIP and Video Conferencing ("Customer") who may purchase managed network, voice and/or security services from ENA Services, LLC ("ENA"). This SLA shall apply to each participating Customer individually and not jointly.

GENERAL CONDITIONS

- No more than four (4) hour response time on any trouble discovered or reported. Response will be defined as trouble isolation with communication back to the Customer and appropriate dispatch as required.
- For any outages lasting for more than 12 hours, ENA agrees to credit Customer's account by the percentage of time where service was interrupted based on ENA's records multiplied by the total monthly charges associated with the service interrupted at the site of the trouble as liquidated damages and not as a penalty.
- ENA will provide a web-based real-time view into ENA's trouble ticket system and into ENA's event notification system for verification of troubles.
- ENA will make available a monthly report on all issue activity consistent with the reporting proposed in this Response for the procured services by one week after the end of the month.

MEASUREMENTS

Packet Latency (20 ms)

ENA's Packet Latency SLA is based on an average round trip time of 40 milliseconds which equates to a one way transmission time of 20 milliseconds. Network Latency is measured between the ENA demarcation point (Ethernet port) at the Customer premises and the connected ENA backbone access point.

Packet Loss (0.5%)

ENA's monthly average packet loss between ENA equipment on Customer premises and the connected ENA backbone access point shall not exceed 0.5%. Packet Loss shall be calculated based on the arithmetic mean of monthly measurements between the closest ENA POP and each Customer endpoint.

Network Availability (99.999%)

ENA's monthly core network availability shall be equal to or greater than 99.999%. Core network availability shall be measured as the amount of time in seconds for which an individual ENA core

network POP is capable of reaching key Internet sites such as google.com, microsoft.com and/or apple.com.

Voice Quality of Service (MOS 4.0)

ENA will maintain the quality of our voice services to meet a mean opinion score (MOS) of 4.0 throughout our core network all the way to our PSTN termination partners.

SERVICE ISSUE DEFINITIONS

Minor

An issue with the Customer's connection to or equipment at any given end site would be considered "Minor issue" if any of the following conditions occur:

- Any hardware/software alarms that could eventually escalate to a major or critical issue.
- Any problems with the ENA's trouble ticket system.
- Any issue that has the potential for negatively affecting the functional performance of the Customer's ENA-provided service at an individual site.

Major

An issue with the Customer's connection to or equipment at any given end site would be considered "Major issue" if any of the following conditions occur:

- Any developing negative performance trends as indicated by network monitoring systems that has the potential to affect multiple sites.
- Any major hardware/software alarms (as negotiated) that would indicate an impending failure on any monitored equipment.
- Any minor problem not resolved in the maximum response time.

Critical

An issue with the Customer's connection to or equipment at any given end or core site would be considered "Critical issue" if any of the following conditions occur:

- Any service failure at a core site that affects service to more than ten (10) end sites.
- Degraded or no data or voice connectivity to any centralized resources and/or the Internet due to a large-scale issue with ENA-provided services.
- Destruction of a key facility or component; possible life-threatening situation; widespread outages affecting significant numbers of staff.
- Problems or outages of the ENA monitoring/management system.
- Voice communication system is completely down.
- Any major problem not resolved in the maximum response time.

RESPONSE TIME

ENA will respond to issues according to the following schedule.

Standard SLA Tier Response/Restoration/Resolution*

Response Level	Target Response Time	Target Resolution Time
Critical	30 minutes	4 hours
Major	2 hours	12 hours
Minor	16 hours	32 hours or within next maintenance window

*Resolution designates the timeframe in Service Hours in which the underlying problem is fixed. In some cases, this may require a hardware or software vendor to develop and provide a permanent fix which can be applied to resolve the problem; and, could exceed expected Resolution Time.

Catastrophic Incident Response Times

In the event of a catastrophic incident, ENA will respond within four hours of cessation of the event with a situation assessment and service restoral plan. This plan may include efforts to restore partial or alternate services according to conditions, as well as new or upgraded services at alternate locations as dictated by the situation.

Timely Installation Intervals for New Service Requests

Provided that adequate facilities exist to provide the service requested, ENA will complete new service installation within 75-90 days of Customer request.

ADDITIONAL CONDITIONS

- ENA's standard maintenance windows are Tuesdays and Thursdays from 11:00 PM local time to 5:00 AM local time. ENA will provide e-mail notification to the designated maintenance point of contact in advance of such maintenance (typically 48 hours). Downtime, packet loss and latency measures do not include scheduled or emergency network maintenance given advance notification.
- All time intervals in this document are expressed in Service Hours (7:00 AM – 5:00 PM local time, Monday through Friday).
- Affected Site is defined as the single site at which each unique trouble event begins; in a multi-site, single issue trouble only one site will be designated the Affected Site and penalties shall apply to only that site, not all end sites that affected by the single issue.
- Core network POPs are defined as locations where ENA connects multiple Customers; core network POPs are not located within Customer facilities.
- Service availability measures do not apply in the event that ENA is unable to perform any of its obligations due to lack of access to Customer facilities or Customer personnel, failure of Customer equipment, damage to ENA equipment or facilities due to act of Customer, its personnel or third parties, failure or interruption of utilities or services provided by either Customer or third parties, which are not the fault of ENA or other force majeure events.
- During implementation, Customer must provide access to all sites where service has been requested from 7:00 AM to 5:00 PM local time, Monday through Friday, excluding holidays.

- If Customer is entitled to multiple credits under this section, such credits shall not be cumulative beyond a total of credits for one (1) calendar month's service cost in any one (1) calendar month in any event at the affected site. Customer must notify ENA within seven (7) calendar days from the time Customer becomes eligible for a credit or within fifteen (15) calendar days after ENA delivers monthly performance reports to Customer. Failure to comply with this requirement will forfeit Customer's right to receive a credit.
- Credits do not apply to failure to meet targeted response times, only to service interruptions.
- Credits shall apply to the site of the original service interruption, not at all affected sites.
- Customer's sole and exclusive remedy for any failure by ENA to provide adequate service levels, including but not limited to any outages or ENA network congestion is detailed herein. Customer agrees to not use ENA's services for unlawful purposes. In such case, ENA reserves the right to suspend or modify service after notification to Customer. Such suspension or modification shall not be deemed to be a failure of ENA to provide adequate service levels under this Contract. In no event shall Customer be entitled to any credit if it violates the terms of service or ENA's then-current Acceptable Use Policy (posted at http://www.ena.com/aup).
- Credits will be applied to the total monthly service cost. If Customer site has requested E-Rate funding for the service at the affected site, then credits will be applied to the service before calculating the Customer's non-discountable liability.

C. Financial Restitution to Customers (Addresses Required Responses Table Item I.c.)

Describe in detail all instances in which you have had to make a financial restitution to you customers in the last year as it pertains to SLAs

In the last year, ENA has not had to make a financial restitution to a customer as it pertains to SLAs.

D. Functional Requirements (Addresses Required Responses Table Item I.d.)

Describe in detail your solution for the functional requirements for all three major categories of service as listed in the title of the RFP

In this section, ENA provides detailed descriptions of the key features of our proposed solutions and specifically addresses the technical requirements for **Managed Internet Access, Content Filtering, Managed VoIP and Managed Video Conferencing** as they are described on pages 7-9 of the RFP.

1. Technical Requirements for Managed Internet Access (Addresses Functional Requirement A)

Managed Internet Access as defined in the Eligible Service List (ESL) as "On Premises Equipment"

ENA's managed Internet access service meets the definition of a service provided with on-premises equipment from the ESL. ENA has been actively engaged with the Schools and Libraries Division (SLD) and was instrumental in the release of the Tennessee Order (FCC 99-216, August 11, 1999), which set the conditions for eligibility of on-premises Priority 1 equipment. We have extensive knowledge of and successful experience with all parts of the E-Rate process. In addition to our own internal team of E-Rate specialists, ENA has a team of experienced outside advisors, including E-Rate legal specialists based in Washington, DC. This team keeps ENA well-informed on E-Rate policies and related changes.

In accordance with FCC 99-216, ENA establishes a demarcation point between our managed Internet access and wide area network on-premises equipment and each participating Consortium school districts' local area network components ensuring that our proposed managed Internet access solution is fully Priority 1 eligible. ENA will meet all reasonable SCS and participating Consortium school district requirements related to E-Rate program administration, including requirements for on-premises equipment as outlined by the most recent ESL.

One of the core benefits of ENA's managed Internet access services offering is that it encompasses the provisioning, installation and ongoing maintenance of all circuits and network equipment and includes network design, monitoring, maintenance support, security, performance evaluation and E-Rate filing assistance. As such, ENA will install ENA-owned and managed equipment to support the level of connectivity as selected by SCS and each participating Consortium school district. All on-premises, end site routers provided by ENA are installed with the necessary equipment to be compatible with the service level chosen and are fully E-Rate eligible as on-premises equipment as outlined by the most recent ESL. Please see **Figure 3** below, representing the physical connectivity.

ENA will provide a scalable and resilient service for Internet connectivity from the main district site to the nearest ENA POP. The service will be delivered over the most efficient transport technology vehicle available at the requested service level. As new, lower cost technologies become available and are implemented in the network, they can be integrated into our service delivery options and may result in more service for the same cost. ENA currently leverages connectivity from a variety of last mile providers and intends to increase the diversity of underlying carriers over the life of the service when doing so enables us to offer better and more cost-effective alternatives.

ENA provides dedicated wide area network (WAN) connectivity services as part of our managed Internet services offering as an option for SCS participating Consortium school districts. This service provides point-to-point or point-to-multipoint WAN coverage between buildings for individual entities as requested. Speeds for this service range from T-1 (1.54 Mbps) through 10 Gigabit Ethernet and may be provided using copper or fiber facilities. ENA is an experienced service provider for the implementation and project management of a managed WAN infrastructure to support connectivity between

schools. Our WAN services deliver reliability, flexibility, scalability, increased service capacity and reduced lease charges for telecommunications infrastructure.

ENA is skilled at providing both Internet access and WAN services to schools and as the incumbent provider for SCS and Consortium districts, the delivery of all solutions would be facilitated through current design and infrastructure with no need to transition to new or modified service. As outlined earlier, selecting anyone other than ENA to continue to deliver these services **introduces significant risk as it would require the transition of services at over 850 sites by July 1, 2013.** Not only will this likely translate to millions of dollars in transition and replacement costs, it is virtually impossible to guarantee the same level of service based on the significant fiber build-out ENA has been able to achieve working with a wide variety of infrastructure providers across Tennessee over the last decade. That is one of the valuable differentiators of working with ENA – we have and will continue to provide more comprehensive and cost-effective services to schools eliminating the complexity and confusion of working with multiple providers all while leveraging E-Rate funding and providing enhanced levels of service delivery and customer support.

ENA Managed Internet Access Includes

- Provisioning and ongoing management of the Internet access egress circuits
- Managed customer premises equipment (CPE) provided, installed, maintained, monitored and updated as needed by ENA throughout the life of our service contract at no charge to the customer
- 24x7x365 Customer Technical Assistance Center (CTAC) support
- Network support and technical field staff
- Access to Internet2
- Extensive peering within the ENA national backbone with key sites your district visits
- Online training documentation, including documentation designed to provide answers to common questions received by the CTAC
- Full E-Rate application support services
- ENA Account Service Manager (ASM) customer support

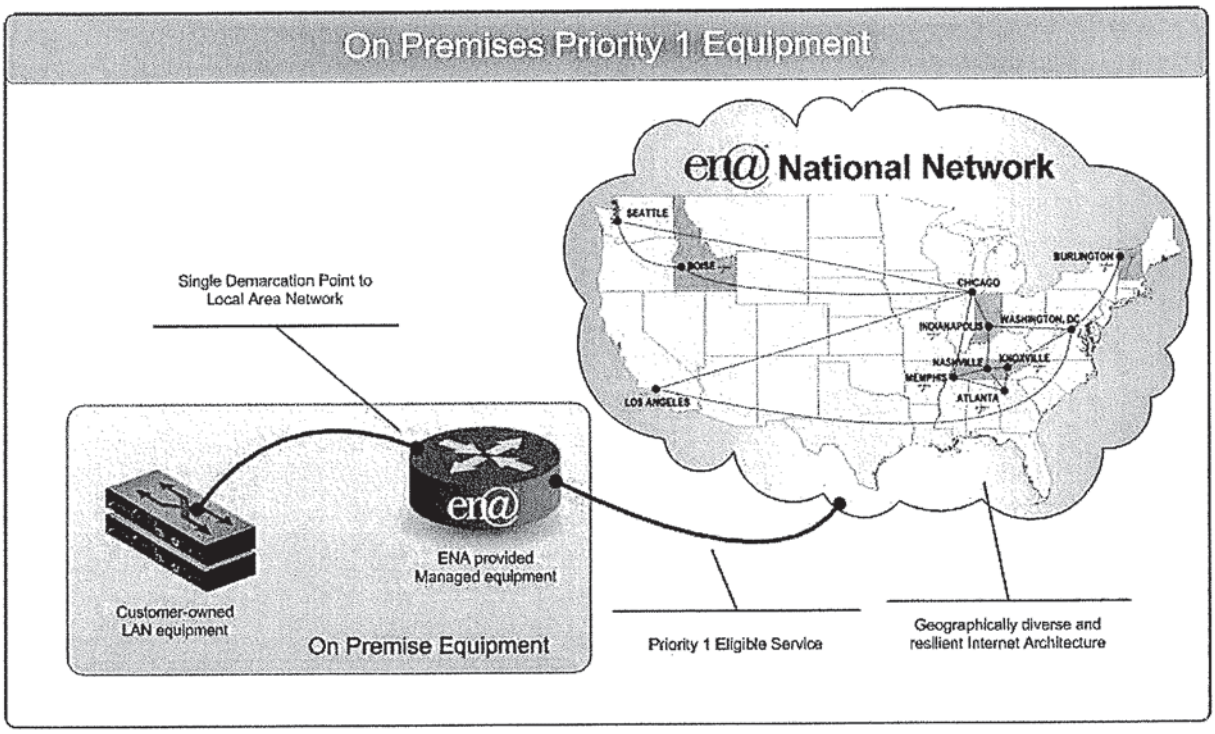


Figure 3: On-Premises Priority 1 Connectivity

Each ENA POP is on a redundant backbone consisting of multiple 1 Gbps and 10 Gbps connections to numerous top-tier transit providers. However, ENA differentiates itself by also establishing direct high-speed peering relationships with numerous content providers, such as Google, Akamai, Limelight, Amazon, Microsoft, McAfee, and ISC; as well as educational institutions and networks, such as Internet2, Georgia Tech/SoX, University of Memphis, University of Tennessee, FLR/NLR, Indiana GigaPOP and Transit Rail.

"For the last several years, McNairy County has worked with ENA as our Internet provider. Their service has been as "good as it gets." They have responded to every request and problem that has occurred expediently. ... I am 1,000% satisfied with ENA services and employees."

Terry Burns, Technology Director
McNairy County Schools, Tennessee

The ENA Network – A Key Component of the Consortium Network Architecture

ENA understands and fully appreciates the critical importance of highly available network services to our customers, which is why exceptional resilience and the ability to recover quickly from outages and disasters are key components to ENA's network design, implementation, operational management and ongoing technology testing.

ENA's national backbone is an integral part of our Tennessee service and designed for education. To ensure overall network performance and resiliency, ENA built a MPLS-based, carrier-grade IP backbone infrastructure comprised of multiple Gigabit and ten Gigabit Ethernet connections linking our POPs together. Our network includes points of presence (POPs) in major Internet peering facilities in Atlanta, GA, Chicago, IL and Washington, DC. Connectivity to Los Angeles, CA and Seattle, WA for our customers is accomplished via our Internet2/TransitRail partnership as well as a new ENA peering POP facility in Seattle, WA planned for 2013. ENA's backbone infrastructure is scalable beyond 10 Gbps and carries traffic from the client request to the proper Internet peer closest to the target resource. Our network ensures that every Internet request and associated traffic uses the lowest latency, most optimum path and, as a result, is handled in the most expedient manner.

Our network supports customers through a regional POP design. ENA's POPs consist of a combination of hardware, software and bandwidth management tools that maximize the value of bandwidth installed for critical services.

ENA is a top-tier ISP itself, peering directly with many other top-tier networks at multiple primary traffic exchange facilities throughout the United States. We also leverage the power of other ISPs through numerous high-bandwidth connections with diverse providers ensuring reliable global Internet access even when one link or peer has trouble. ENA continually analyzes network traffic to ensure that it is delivered using the optimal path. The results of our analysis have led us to invest in a high-speed, national network backbone that includes significant network traffic peering, in-network content hosting, content caching, connectivity to national and international research and education networks (such as Internet2 and National Lambda Rail) and quality of service (QoS).

In addition to the national and international research and education network peering arrangements, ENA has also invested in similar connectivity within the State of Tennessee. On other networks, educators often do not use technology, training and distance learning resources available at public and private higher education institutions because they find those resources slow, unresponsive, and difficult to access. The ENA network is currently peered directly with the University of Memphis and the University of Tennessee-Knoxville, and we have connections to the State Data Center and the Office of Information Resources' (OIR) agency network. No one else in Tennessee has established such an extensive mix of peering partners both in and outside of the state and, as such, our network is best positioned to provide reliable and fast access to the resources that really matter to educators at SCS and participating Consortium school districts throughout the State of Tennessee.

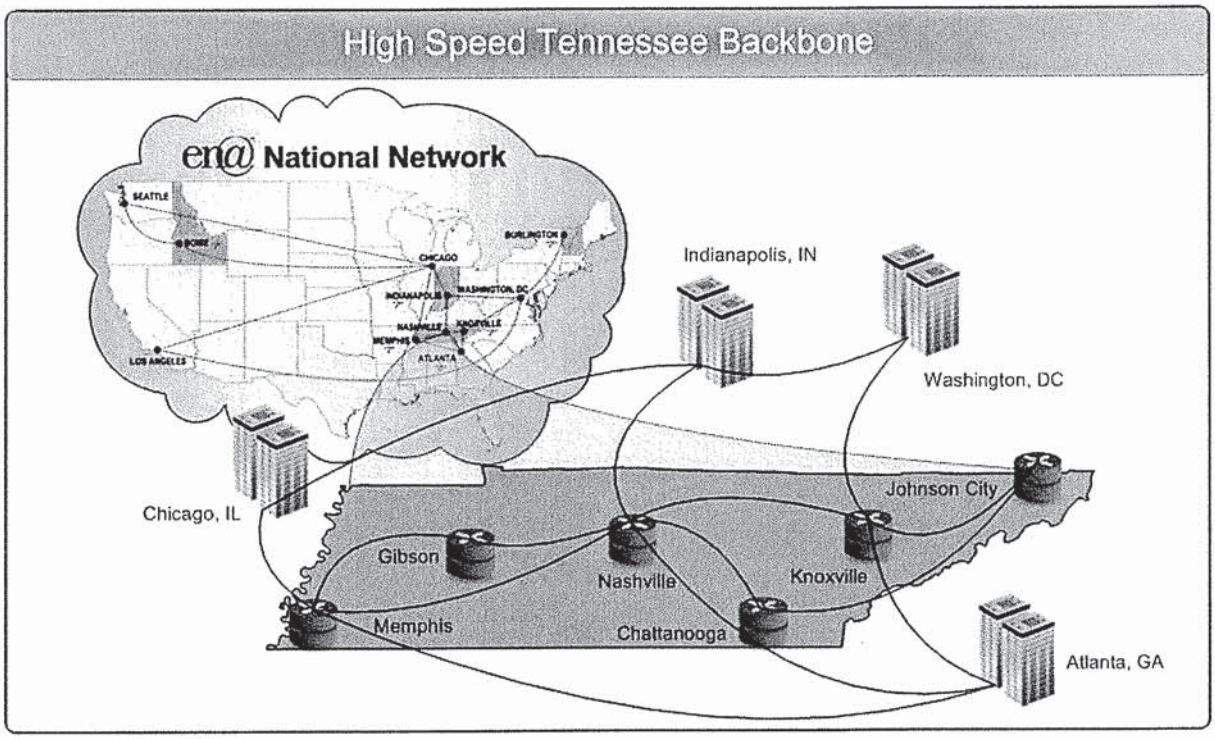


Figure 4: Tennessee Backbone

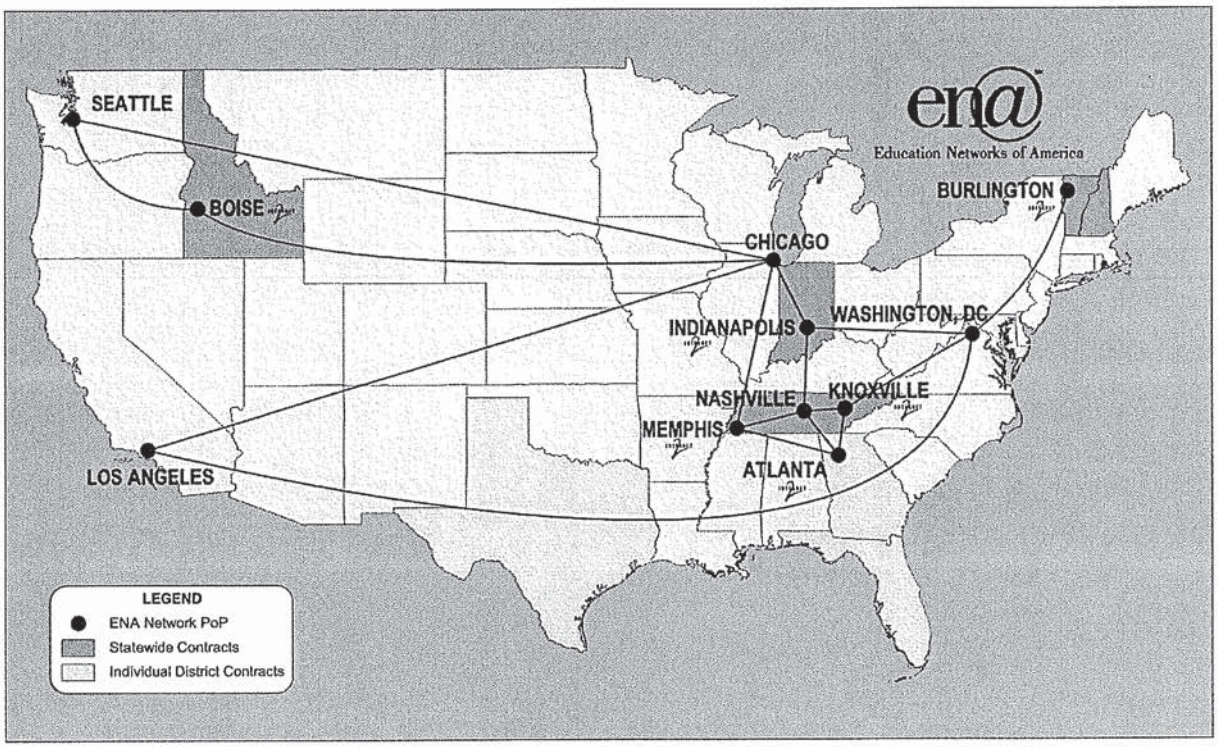


Figure 5: ENA National Network Map

Network Security

We understand that network security is critical to a safe, productive environment. To safeguard the network against viruses and other invasions, **we use a number of security measures for multilayer protection** including:

- Access control lists (ACLs) at the core of our network and at all ENA sites
- Routing protocol authentication
- Firewall services
- Proactive network monitoring

As an optional service, ENA offers comprehensive, centrally hosted firewall services including all hardware, software and support.

ENA can also provide management and maintenance of school-owned firewall appliances that can be configured to be hosted locally and perform many of the same tasks as our centrally hosted solution.

IP Address Management

ENA provisions static public IP addresses with an overall strategy that provides participants with a scalable IP addressing schema that meets and exceeds their minimum requirements, while at the same time following the American Registry for Internet Numbers (ARIN) guidelines. We also provide periodic updates regarding IP address changes and will provide DNS for customer address pools.

ENA's IP address allocation plan outlines specific rules for ENA staff to consider before assigning new or additional IP addresses (public or private), including the district's population or library's square footage and devices, the computer count and physical location on the ENA network. The result of this process is that schools or libraries are allotted the correct number of IP addresses needed based on the metric, as well as an allowance for future growth. Additionally, the geographic assignment of IP addresses allows ENA to summarize routes at our POPs, thus providing faster Internet connectivity.

Over time, ENA will assist customers in their eventual transition to IPv6 addressing. IPv6 is the next generation protocol designated by the Internet Engineering Task Force (IETF) to replace the current version, IPv4. Most of today's Internet uses IPv4 which is now more than 20 years old. IPv4 has been remarkably resilient in spite of its age, but it is beginning to have problems. Most notably, there is a growing shortage of IPv4 addresses, which are needed by all new machines added to the Internet.

All proposed network-layer hardware supports the IPv6 technical requirements in addition to the current IPv4. ENA's current internal support structure will remain in place; the support structure was designed to be flexible and will be kept in line with industry standards and practices throughout the resulting contract term.

ENA has already deployed IPv6 addressing throughout our backbone and at customer sites, and this protocol is supported on most versions of Windows, Mac OS and Unix/Linux-based operating systems.

While migration to IPv6 addresses is not a requirement to maintain connectivity through ENA, we will encourage orderly migration over time for all of our customers. We expect our customers will make their own determination regarding the value of this migration and their preferred timing to make the change. This migration is part of the ongoing innovation and technology refresh that are key benefits of ENA's IaaS solution. We will work closely with each customer to make any migration as easy as possible.

Reliability

ENA is constantly researching and testing ways to further mitigate risk and reduce recovery time. As an example, ENA implemented MPLS Fast Reroute (MPLS FRR) across our network backbone. MPLS Fast Reroute, or MPLS Local Protection, is a data link-layer network resiliency mechanism that allows ENA to create pre-configured backup paths for all backbone traffic. **With MPLS FRR, ENA has the ability to reduce the time it takes to route around network outages from several minutes to less than a second.**

Managed Internet Access Service Options

ENA will provide the following as service options to our managed Internet access solutions, per the requirements set forth in this RFP:

1. E-mail Hosting *(Addresses RFP Purpose 1.b)*

ENA has been providing e-mail and related collaboration services to school districts and libraries across the nation for over a decade. In November 2010, we launched a completely redesigned and re-architected ENA Mail service to better provide industry-leading features to K-12 professionals, and since that time we have migrated over 30,000 accounts to the new ENA Mail including SCS and many school districts from the SCS Consortium. Continuing with ENA as your service provider of choice will allow SCS and other ENA Mail users in the Consortium to completely avoid any costly and disruptive migration or transition activities.

Currently serving over 100 school districts and library systems across the country, ENA Mail is specifically designed to serve the modern communication needs of K-12 faculty and staff. We are confident that the features and scalability of ENA Mail, in conjunction with ENA's award-winning customer support and extensive migration and implementation experience, will provide you with a complete collaboration solution that will meet and exceed your expectations. ENA Mail includes:

- Comprehensive e-mail, calendaring, task management, distribution list, briefcase, and personal and global address book
- Robust, sophisticated web interface
- Secure SMTP, IMAP and POP3 access from any standards-based e-mail client
- Full Exchange-like integration with Microsoft Outlook clients, including Outlook 2003, 2007, and 2010, through the use of the ENA Mail Outlook Connector*
- Apple iSync integration with Apple Mail, Apple Calendar, and Apple Address Book*
- ActiveSync integration for eligible smart phones and tablets, including most Android-based devices and the Apple iPad and iPhone*
- Advanced spam and virus filtering

- Configurable mailbox sizes per user class of service, including the ability to provide unlimited mailbox storage at no additional cost
- Optional archiving services and legal discovery
- ENA's stellar 24/7 support

*Requires ENA Mail Pro

Please see a copy of our ENA Mail brochure in **Exhibit 2.**

Professional Features on Any Device

ENA understands that many libraries and school districts are interested in moving to cloud-based e-mail and collaboration solutions but that they also require industry-leading features, full integration with multiple devices, and full account management and support. It is with these requirements in mind that ENA launched our new ENA Mail service.

All ENA Mail features are available via the ENA Webmail interface. ENA Webmail provides sophisticated client features such as drag and drop and right-click menus directly in your web browser. ENA Webmail is compatible with almost all modern browsers and, unlike some versions of Microsoft Exchange, does not require the use of Internet Explorer to get most features online.

ENA Webmail features include:

- **Drag and Drop Calendar** – A user can easily add appointments, send and receive meeting requests, check availability, and schedule appointments with users, resources or locations.
- **Right-click Menu** – Inside ENA Webmail, use the right mouse button to show a context sensitive menu with popular options for each collaboration feature of ENA Mail.
- **Keyboard Shortcuts** – Tasks can be accomplished with simple keystrokes inside the ENA Webmail interface using ENA's pre-defined shortcuts or users-created shortcuts.
- **Powerful Search Functionality** – Users can search not only their mail and calendar entries, but also their PDF, .DOC, .PPT and other files attached to their e-mails.
- **Tags** – Create custom tags to apply to e-mail messages. Once tagged, easily filter messages and display only e-mails that contain the custom tag.
- **Briefcase** – Users have access to an online repository or drive share where they can upload, retrieve and share files with others right inside ENA Webmail.
- **Shared Folders** – Individual folders and calendars can be shared out to other ENA Mail users or even users not on ENA Mail. Mail, address books, calendars, documents and files can all be shared quickly and easily.

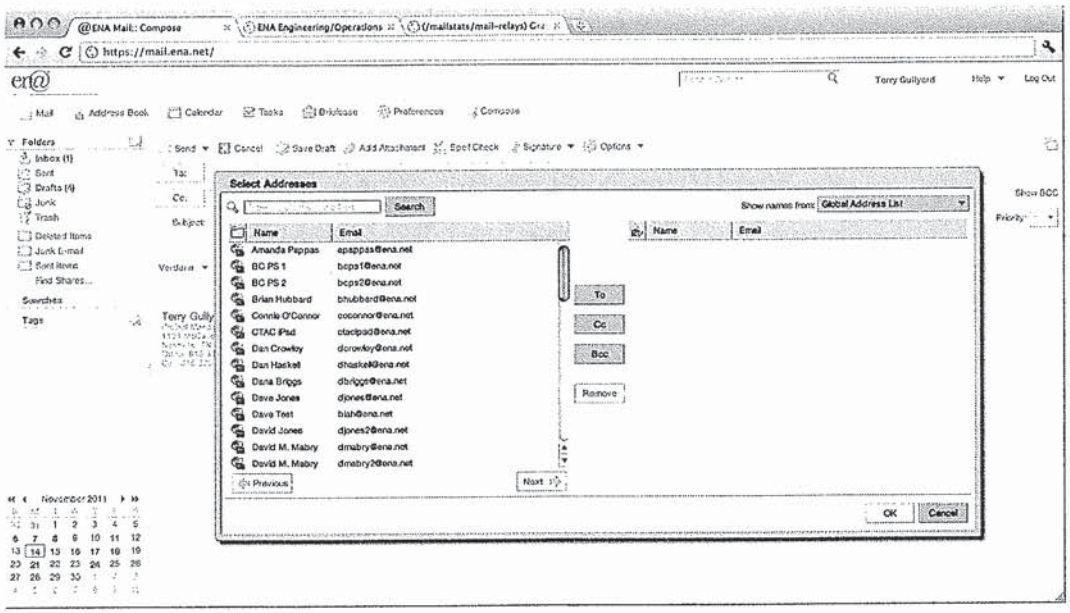


Figure 6: Global Address List Integration with ENA Mail

In addition to ENA Webmail, ENA also offers secure SMTP, IMAP and POP e-mail access for all standards based e-mail clients. With our ENA Mail Pro accounts, we offer full Microsoft Outlook and ActiveSync integration for those users who want to integrate their e-mail, calendar, tasks and address books across multiple clients and smart phones.

For Microsoft Outlook integration, ENA provides an optional ENA Mail Outlook Connector, available with ENA Mail Pro accounts, which is compatible with all recent versions of Outlook, including 2003, 2007, and 2010. The ENA Mail Outlook Connector translates Outlook's native Messaging Application Programming Interface (MAPI) to safer, more efficient protocols better suited to traversing wide area networks and Internet connections.

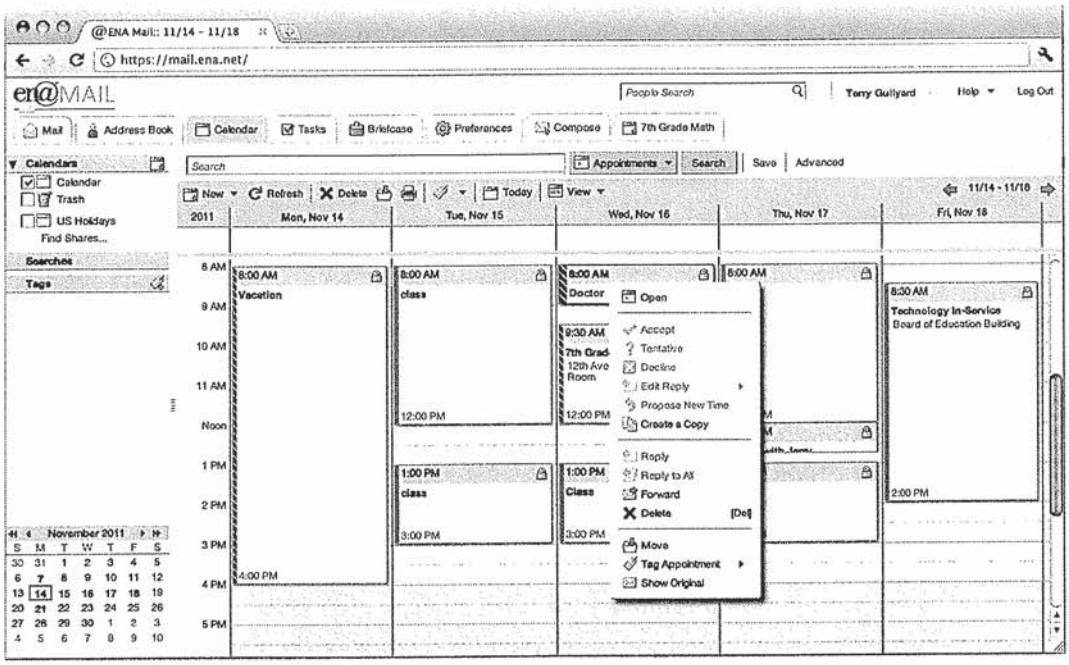


Figure 7: ENA Webmail Weekly Calendar View with Right Click Options

Carrier Reliability with Complete Flexibility

The core software architecture of ENA Mail is based on VMWare's Zimbra Collaboration Server (ZCS), a sophisticated, carrier-class communication infrastructure currently used by over 50 million subscribers world-wide. In addition to the 100+ school districts and library systems that use ENA Mail every day, a number of other K-12 and higher education institutions have implemented their own ZCS-based solutions. Currently, ZCS-based infrastructure supports the e-mail and collaboration needs of Stanford University, Texas A&M University, Purdue University, Detroit Public Schools, Seminole County Public Schools and Shelby County Public Schools, just to name a few.

Beyond the ZCS core, ENA Mail has been designed from the ground up to provide "five nines" reliability and scalability. The ENA Mail platform is housed in carrier-grade data centers with redundant power and backup battery (UPS) capability. Accounts will be distributed across multiple, resilient mail stores, each of which will be connected to a highly available Storage Area Network (SAN). The SAN itself incorporates a fluid data infrastructure which can support RAID 1+0, RAID 0+1, RAID 10 VPS, and RAID 5, among others, and provides for exceptionally quick retrieval of mail store data through the use of proprietary algorithms that migrate data across arrays based on frequency of access. It is this architecture that allows ENA to provide unlimited storage for each mailbox without significantly degrading mailbox retrieval times, even for exceptionally large mailboxes.

In addition to the mail stores and storage area networks that comprise part of the ENA Mail platform, ENA also deploys a highly redundant N+1 architecture for our mail relays. The mail relays act as the primary and backup external mail exchanger for all ENA Mail domains and scan all mail to, from, and between ENA Mail users for spam and viruses.

ENA performs rolling full backups of each mailbox every 15 days, with incremental backups of each mailbox every day. We can provide a full mailbox restoration of data lost within the past 30 days. For greatest flexibility, we include unlimited storage for all mailboxes at no additional charge, but if you wish to limit mailbox size for specific users or user types, ENA is happy to implement any mailbox policy to meet your needs and requirements.

Though ENA Mail is a fully hosted, fully managed cloud service, ENA will provide end users the control necessary to cater the service to best meet your needs. ENA provides individual end users with the ability to manage folders, user preferences, spam settings, calendars and other features through the ENA Webmail interface. Customers have complete administrative control of all their user mail accounts through the integrated ENA Service Center. ENA also can work with any domain name and user account name format to best integrate with organizational standards. Finally, ENA can seamlessly integrate with existing user directories, such as eDirectory, OpenLDAP, and Microsoft Active Directory.

Archiving and Legal Hold

ENA understands that in addition to hosted e-mail and collaboration features, certain customers require legal hold and legal discovery services as well. ENA can place a quick and effective legal hold on any ENA Mail account upon request by an authorized customer representative. We have significant experience helping our customers work through sensitive legal matters and have processes in place to expedite legal holds, requests for discovery, and subpoenas.

In addition to legal hold, a full legal discovery interface can be leveraged via our optional archiving services. Through our partnership with Gaggle, ENA can provide optional, comprehensive e-mail archiving, retention and search and discovery capabilities that will help customers comply with the legal discovery requirements of your legal department as well as recent changes to the Federal Rules of Civil Procedure (FRCP).

Highlights of our full archiving and legal discovery solution include:

- Automatic archiving of every message sent and received by your e-mail users
- Advanced, secure online search and discovery
- Full compatibility with ENA Mail
- Hassle-free setup and comprehensive support

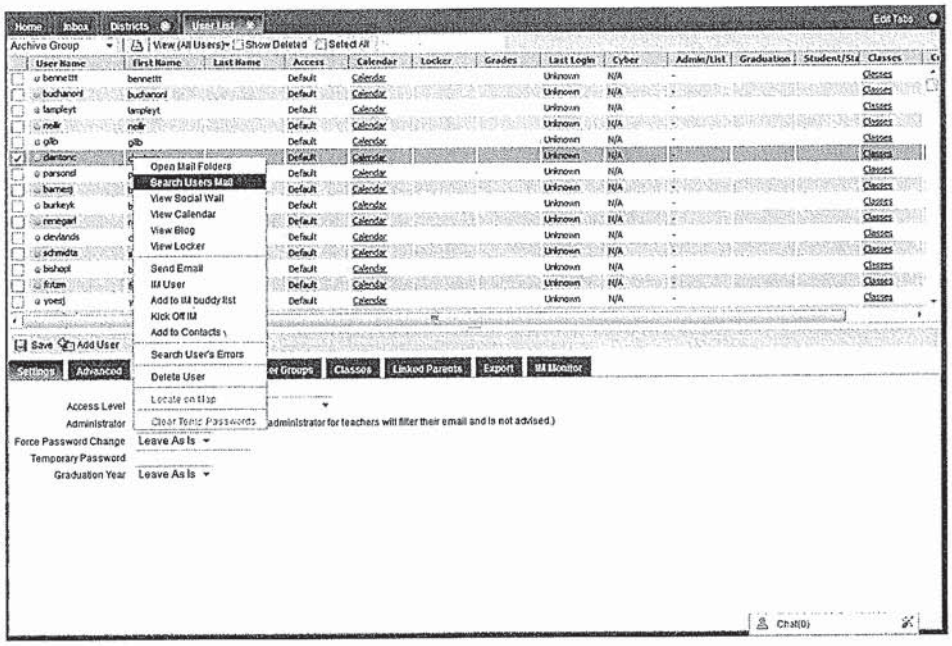


Figure 8: E-mail Archiving and Legal Discovery Interface

Anti-Virus/Spam Filtering

ENA provides robust spam and virus filtering services for all ENA Mail users. Our filtering engines intercept and scan all e-mail to, from, and between all ENA Mail accounts. ENA's filtering solutions use a combination of heuristic content and header analysis, multiple reverse DNS blacklists and spam-reporting databases, Bayesian filtering, and collaborative human review to prevent almost all spam from reaching our users' Inboxes. E-mails that do not pass our thresholds for being automatically deleted, but which our filtering solution tags as probably spam, are placed automatically in users' spam or junk folders for their review.

In addition to our sophisticated spam filtering, ENA also provides antivirus scrubbing for attachments using two different enterprise anti-virus solutions. Any e-mail with a detected virus is immediately deleted or inoculated.

Finally, attachments with the most probable extension types through which an unknown or undetected virus might propagate are stripped. This file-stripping helps limit the spread of viruses and distribution of infected files via ENA Mail accounts.

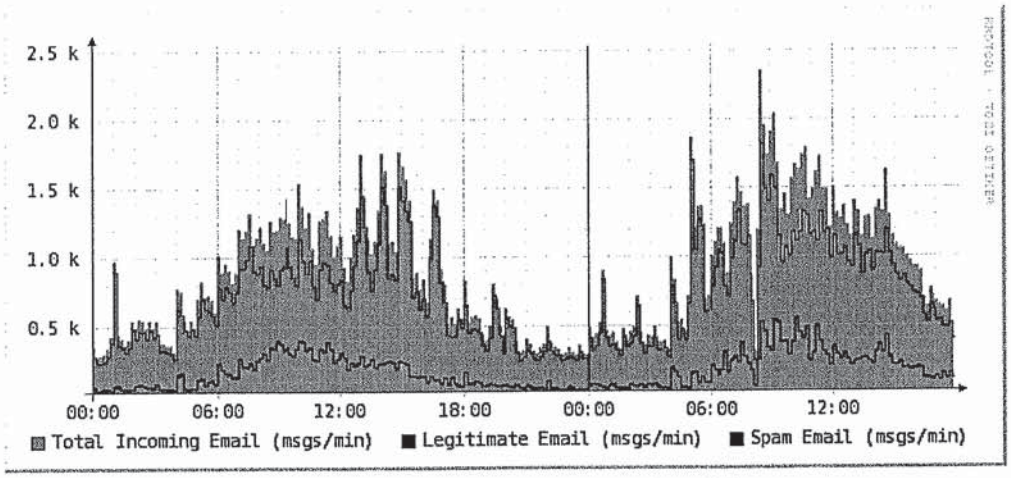


Figure 9: ENA Mail Messages Scanned Per Minute

2. **Web Hosting** ***(Addresses RFP Purpose 1.c)***

While web hosting is not a frequently requested component of ENA's managed Internet service, we have the experience and the capacity to offer a variety of web hosting solutions. ENA's basic web hosting package uses either the schools' existing domain name(s) or allows participating Consortium school district to pick a new domain name, and allows for basic flat file web hosting. ENA can provide DNS management in conjunction with our web hosting services, or can provide districts the correct hosting information to districts who wish to manage their own DNS zones. Via our partnership with Sitemason, ENA can also provide site creation tools, content management, and built-in calendar and news feed widgets, as well as easy-to-use design tools and templates that can be customized via a point-and-click web-based interface to create a robust school website. Schools will receive unlimited disk storage and data transfer for their website designed using these tools.

Should SCS or participating Consortium school districts desire additional features and functionality, ENA will work to determine our ability to package and deliver a solution that meets both their technical and financial needs.

Service Level Agreement

Each vendor should include their Service Level Agreement (SLA) and detailed description of the terms. The SLA must address the following issues and meet the following criteria, at a minimum:

1. **Network availability - industry standard of 99.999% is preferred. Service providers shall describe how they calculate availability.**
2. **Packet latency (20ms)**
3. **Packet loss (0.5%)**
4. **Timely installation intervals for new service requests – provide standard installation intervals for all services in the RFP**
5. **Maintenance response times for major and minor service outages – provide response times for major and minor outages for each service in the RFP**
6. **Number of major failures per year**

7. **Catastrophic incident response times (unplanned outages due to natural and man-made causes – provide response times to develop and submit a proposed resolution plan to address catastrophic outages such as hurricane, act or terror, etc.)**
8. **Quality of service (QoS) – voice over IP quality must be maintained at a Mean Opinion Score of 4.0, the equivalent of —toll quality.**

The SLA will include consequences for noncompliance with SLAs terms, including financial penalties and grounds for contract termination (amount to be negotiated).

Please see **Tab IB. Service Level Agreement** above for ENA's **Service Level Agreement** including information and details related to items numbered 1-5 and 7-8 in the requirements listed above. It also includes details on consequences for noncompliance.

In response to **Item 6**, regarding major failures, ENA's backbone network is resilient by design. While we experienced individual link failures on occasion, there were no major service impacts to our core network that caused a large number of customers to experience a loss of service. Please see further detail on specific multi-site customer visible outages in **Tab IIA. Network Failure Information** of this document.

Audited Financial Statements

Vendor must provide audited financial statements for the past 3 years.

Please see **Tab IE. Financial Stability** and **Tab VII. Required Forms and Documents** for ENA's financial information and financial statements.

Online Tools

Vendors must provide a detailed description of their online tools available to the client to support telecommunications payments, account information, account changes, network monitoring and other functionality that can provide value.

Please see **Tab IH. Quality Assurance Plan** for detailed information on ENA's online tools available to SCS and each participating Consortium school district.

2. Technical Requirements for Content Filtering of Managed Internet Access (Addresses Functional Requirement B and RFP Purpose 1.a)

The vendor must propose a solution for content filtering which is compliant with the Children's Internet Protection Act (CIPA). Information for this may be obtained from the USAC website. There will be separate pricing required for this service on the cost section of the RFP.

ENA has provided CIPA-compliant content filtering to almost all Tennessee schools for over a decade and will continue to do so on an opt-in basis if awarded a contract with SCS and participating Consortium school districts as a result of this RFP process. In 2012, ENA completely revamped our

content filtering architecture and introduced a new suite of filtering services, ENA WebSafe. **ENA WebSafe is designed to provide schools and libraries more even more flexibility, scalability, and community control over their own filtering choices, and—like ENA's previous web filtering services—is fully compliant with the filtering requirements of the Children's Internet Protection Act (Public Law 106-554), Title XVII – Children's Internet Protection (CIPA).** ENA is highly experienced with available filtering technologies, filtering legislation and E-Rate requirements related to filtering. ENA WebSafe represents ENA's ongoing drive to provide robust, cutting edge, but extremely reliable solutions and to continuously enhance and improve our services to meet and exceed customer needs. Please see ENA WebSafe brochure in **Exhibit 3.**

The filter service will be optional for LEA's to accept with the Managed Internet Access from the awarded provider.

ENA understands that our content filtering services will be provided on a participating Consortium LEA opt-in basis.

"ENA is one provider I can depend on to deliver services for our district at a level second to none."

Joey Trent, Technology Coordinator
Elizabethton City Schools, Tennessee

ENA WebSafe

ENA WebSafe was developed exclusively for school and library environments by listening to our customers' needs and incorporating their priorities. With this in mind, ENA WebSafe was designed around the following end user requirements:

- Protect children and enhance the educational relevancy of Internet content
- Provide maximum flexibility for local communities
- Provide maximum scalability, given that school and library Internet utilization doubles every 12-18 months
- Provide 24/7/365 real-time updates to categorization database
- Minimize administrative or technical burden on school staff but also provide robust reporting and options for local control
- Respect the professionalism and decision making of school administrators
- Support First Amendment protections for adults
- Comply with federal legislation such as CIPA

Based on these requirements, ENA will begin providing three different service options for robust content filtering in 2013: ENA WebSafe Classic, ENA WebSafe Prime and ENA WebSafe Pro. All three service options are fully managed and supported by ENA and do not require your organization to purchase or maintain any of your own hardware or software. Furthermore, they do not require end users to change

their browser settings or operating system (O/S) configurations in order to receive the fullest level of protection and flexibility each of these ENA WebSafe solutions provide.

Please note that either ENA WebSafe Classic or ENA WebSafe Prime is included with ENA's managed Internet access service. SCS and other participating Consortium districts simply need to indicate to ENA which filtering option they wish to choose as part of their managed Internet access service.

ENA WebSafe Classic

ENA WebSafe Classic is particularly well suited for statewide, cloud-based implementations where multiple organizations wish to share the same filtering policy. ENA WebSafe Classic provides the following core features:

- Robust HTTP filtering, based on a continuously updated database of millions of URLs, domains, and web hosts and 40+ different content categorizations
- Real-time whitelist and blacklist overrides so the organizations sharing a filtering policy can quickly apply changes to their shared filtering experience by requesting such changes through the ENA CTAC
- ENA Authorized Override (AO) for adult and other personnel with organization-granted permission to override filtering
- Request for Review built directly into the content filtering block page so organizations can easily request review of a site or suggest that a particular URL be blocked or unblocked
- Daily reporting on websites visited by AO users
- On-line administration of both permanent and single-use AO usernames

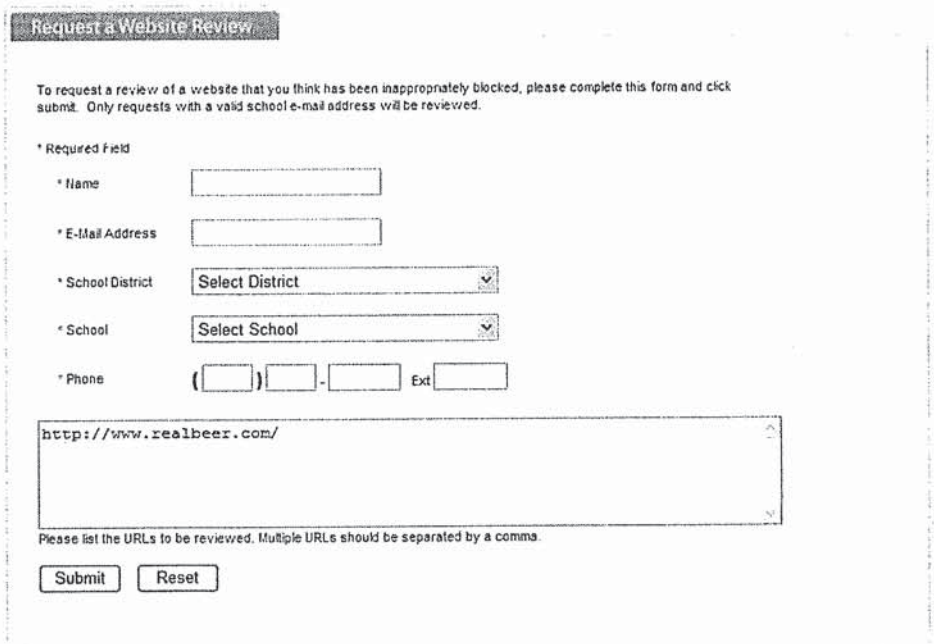


Figure 10: Online Website Review Request Form

ENA WebSafe Prime

Like Classic, ENA WebSafe Prime provides fully managed, CIPA-compliant, cloud-based filtering, but unlike Classic, each individual school district or library has complete control over its own filtering policy with ENA WebSafe Prime. Additionally, **ENA WebSafe Prime includes HTTP and HTTPS filtering, YouTube for Schools support, and robust online reporting and policy controls**. In short, with ENA WebSafe Prime, your organization will receive:

- Robust **HTTP and HTTPS** filtering, based on a continuously updated database of millions of URLs, domains, and web hosts and 40+ different content categorizations
- On-line filtering policy controls available 24/7/365 so authorized personnel can make real-time changes to your organization's blocked or allowed category choices, and can update your blacklist and whitelist overrides
- ENA Authorized Override (AO) for adult and other personnel with organization-granted permission to override filtering
- Request for Review built directly into the content filtering
- YouTube for Schools support
- On-line administration of both permanent and single-use AO usernames
- Customized Block Pages
- Robust on-line reporting by day, week, or month that will include:
    - Top domains and/or hostnames visited or blocked
    - Top content categories visited or blocked
    - Total URLs requested, allowed, and blocked
    - Websites visited by Authorized Override users, per user

ENA WebSafe Pro

ENA WebSafe Pro provides organizations the most comprehensive and scalable fully managed filtering service available on the market today. ENA WebSafe Pro includes all the features available with ENA WebSafe Prime, including HTTP and HTTPS filtering, YouTube for Schools support, and on-line reporting and policy control, but also includes the following enhanced functionality:

- Active Directory (or other LDAP-based user directory) integration
- Distinct filtering policies for each user group
- HTTP and HTTPS filtering on non-standard ports for enhanced anonymous proxy detection
- Time of day/day of week policy flexibility
- Protocol detection and blocking options for over 20 different protocols in addition to HTTP and HTTPS
- Enhanced reporting, including all reports available with ENA WebSafe Prime, plus
    - RFC 1918 address visibility and reporting
    - Reporting by username for both standard and AO users

ENA WebSafe Pro is licensed by user, not by machine or MAC address, and therefore provides exceptional value to schools as they adopt BYOD or 1:1 initiatives. Unlike other filtering solutions on

the market, ENA doesn't charge more for filtering as the ratio of computers to students increases. This is just one of the many ways ENA encourages 21st century learning. Pricing for ENA WebSafe Pro is included the **Optional Services Pricing** section.

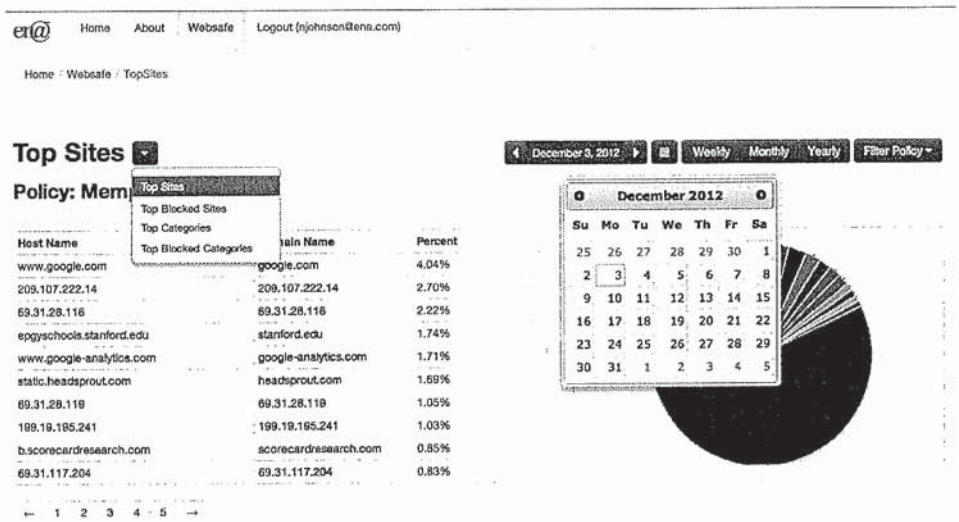


Figure 11: Online Reporting Available with ENA WebSafe Prime and Pro

ENA Authorized Override

ENA's Authorized Override service is available with all ENA WebSafe levels of service. **ENA Authorized Override is cookie-based and can detect a valid override even when an organization is using NAT (RFCs 1631 and 3022) and Private IP addresses (RFC 1918)**, whereas other IP-based systems will override an entire school rather than the specific workstation requesting the override.

If an override of any URL is desired, the user simply clicks on the link on the block page marked "Authorized Override." A sign-in box will appear with a place for time period. After entering a valid password and time period, an authorized user then will receive a confirmation page that allows the user to override the filter. Local school policies and administrators determine who has access to the override passwords and how this feature is used. **The following screenshot shows the AO tool that allows individual patrons to access blocked sites:**

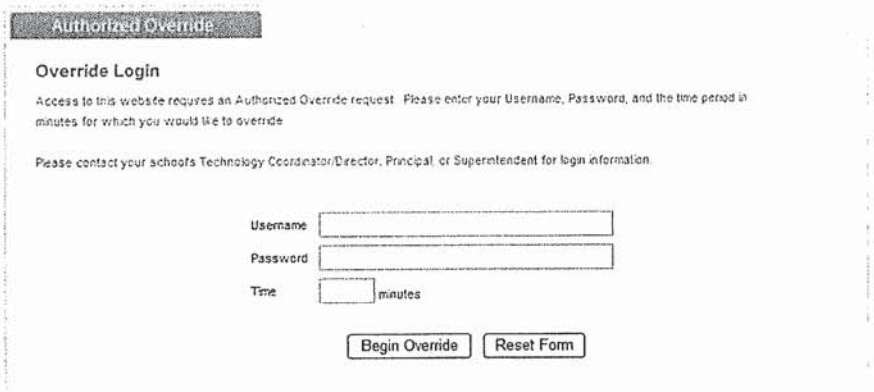


Figure 12: Online Authorized Override Request Form

To further protect the privacy of users, ENA also provides Single-Use Authorized Override. This service can be utilized anywhere computers are available to the general walk-up public. This service dynamically creates a username and password that can be used once and only once to establish an AO session. The username is included in Authorized Override reporting, but there is nothing to correlate the usage to a specific person.

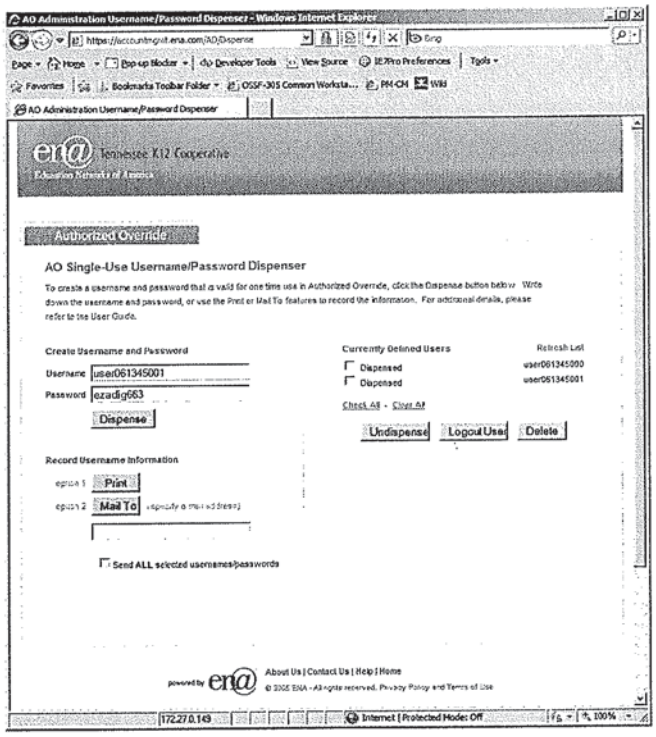


Figure 13: AO Single-Use Username/Password Dispenser

Children's Internet Protection Act Compliance

ENA WebSafe is compliant with the filtering requirements of the Children's Internet Protection Act (CIPA). We have studied and reviewed CIPA rules, compared our filtering program, including Authorized Override to those rules, and worked with third-party legal and E-Rate experts to evaluate our offering. All of these steps have contributed to our assertion that the ENA content filtering service, including our AO bypass system, is compliant with CIPA content filtering rules.

It must be noted that CIPA compliance does not end with having a compliant filtering software solution. Each school district must also establish CIPA-compliant policies and procedures related to their usage of filtering as part of any overall CIPA plan. ENA will provide technical assistance to customers to improve their understanding of the full scope of CIPA-compliance requirements.

By bringing safety into its proper perspective and focusing on the entire school mission, ENA can assist customers in bringing not only a robust safety net for children, but also a total solution designed to make the Internet a valuable place to learn and gain access to the growing number of resources and services available to all members of their communities.

3. Technical Requirements for Managed VoIP (Addresses Functional Requirement C)

Managed VoIP is the ability to use the Internet Protocol (IP) to place voice calls and transport voice traffic over the data network.

A solution based on services provided by a telecommunications provider that is primarily based on traditional monthly usage charges for tariff or contracted telephone services with little or no customer owned equipment. This may be based on Centrex, Plexar, POTS or other telephone services.

It must be a turn-key solution and must be consistent with current E-Rate ELS funding and eligibility guidelines.

ENA Telecommunications Suite

ENA is a facilities-based provider of Interconnected Voice over IP (VoIP) and we have designed a telecommunications suite that offers two convenient ways to provide carrier-class, next-generation telephone service from a trusted provider of mission-critical data connectivity services. **The two options are ENA SmartVoice, a hosted interconnected VoIP service, and ENA SmartLink, a trunking solution that connects to both traditional and IP-enabled PBXs.**

ENA SmartVoice is a fully redundant interconnected VoIP service that combines the local and long distance calling capabilities of traditional dial tone with all the next-generation phone features of a brand new IP PBX. **Designed for sites that either use Centrex today, or that have PBX or key systems that need to be upgraded or replaced, ENA SmartVoice helps eliminate the high capital expenditure costs of purchasing, upgrading, managing and maintaining on-premises telephony servers and equipment.** Please see a copy of our ENA SmartVoice brochure in **Exhibit 4**.

ENA SmartLink is designed to provide inbound and outbound calling for customers who wish to keep and maintain their own installed PBX or key systems. ENA SmartLink works just like your current telephone line service, but offers an extensive set of features and a variety of different interconnection methods to meet both current and future needs, all delivered for a single, cost-effective monthly fee.

Each of our telecommunications solutions is Priority 1 E-Rate eligible and includes many bundled features such as generous local and long distance calling, and simple, flat-rate billing. With either solution, customers typically have the ability to transfer or port current telephone numbers to ENA. If needed, customers may also choose different combinations of ENA SmartVoice and ENA SmartLink including a combination of each service at a single location.

A clear distinction of ENA's voice services is our enhanced call quality monitoring. With our monitoring service, ENA is able to monitor the overall quality of experience for every call made to and from ENA's voice solutions. This allows ENA to quickly pinpoint where a call problem lies – whether on the customer's LAN or on our own telecommunications network – thereby enabling us to resolve the issue in a more efficient, more effective manner.

"ENA's voice implementation offers an economical solution to upgrading old telephony systems. The feature set and customer support are far superior to other voice providers. Maury County Public Schools is extremely satisfied with the ENA product."

Tommy Schuyler, Instructional Technology Manager/Network Administrator
Maury County Schools, Tennessee

ENA's solution is also specifically tailored to the education community and we do not design services to meet the feature requirements of many different vertical markets. Since we are solely focused on providing voice services that meet the unique needs of education, our customers can be assured we will provide a solution to meet their specific requirements.

ENA has provided a copy of our voice services contract in **Exhibit 5**.

Redundant Configuration, Increased Reliability

The underlying infrastructure upon which ENA's voice services have been built utilizes both carrier-class equipment and geographically redundant architecture designed for 99.999 percent reliability in real world implementations—drastically increasing customer access while at the same time significantly reducing downtime. Our hosted ENA voice platforms are housed in highly secure carrier facilities with redundant utility power, backup battery and diesel power, highly redundant IP connectivity to ENA's network backbone and redundant external telecommunications connectivity. Each platform utilizes a highly redundant and scalable architecture designed to allow for multiple failures with no degradation in service.

The following graphic illustrates ENA's geographically-redundant voice platform infrastructure.

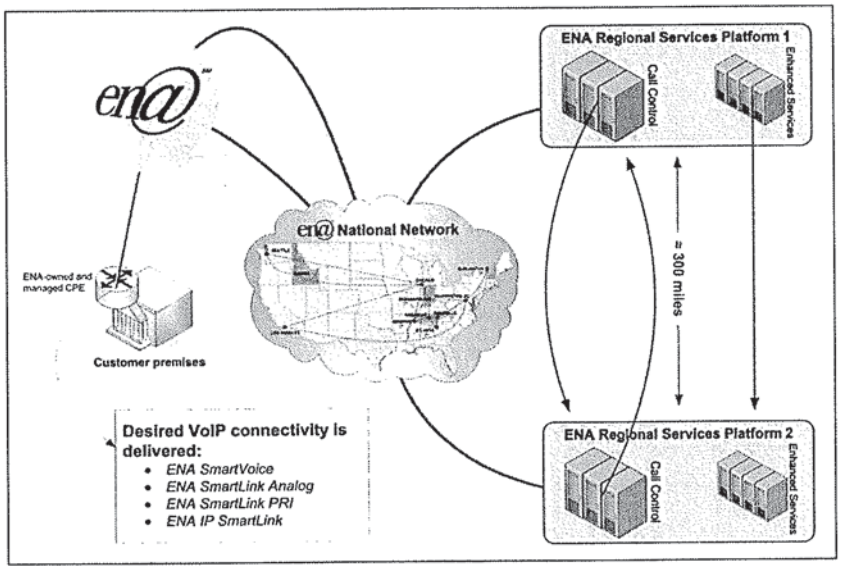


Figure 14: ENA VoIP Architecture

ENA SmartVoice

ENA designed our ENA SmartVoice voice offering to meet the unique needs of our customers. The ENA SmartVoice Interconnected VoIP suite is a Priority 1 E-Rate eligible, highly-reliable, fully hosted and managed service that helps customers avoid large up-front capital expenditures associated with purchasing, upgrading, and maintaining on-premises PBX equipment. The hosted VoIP line of products are a great solution for customers that either use CENTREX today, do not have a PBX system at all, or would like to replace a legacy key system or PBX in one or more of their facilities.

The ENA SmartVoice interconnected VoIP solution delivers features like voicemail and abbreviated digit dial directly to individual handsets, and combines those features with integrated, generous local and long-distance calling options. ENA SmartVoice is a true PBX replacement, with dozens of valuable calling features integrated into each package with a simple, flat-rate bill. ENA SmartVoice also provides the ability to transfer or port your current telephone numbers to ENA, where available. ENA's hosted VoIP platform delivers dedicated, feature-rich telecommunications services providing a high-value alternative to traditional telephone company service.

The standard core features included in all ENA SmartVoice packages consist of:

- **Generous Calling Plans**
- **Flat-Rate Billing**
- **Local Number Portability (if applicable)**
- **Call Park/Pickup**
- **Music on Hold**
- **Call Forward**
- **Call Hold**
- **Call Transfer**
- **Caller ID and Caller Name Display**
- **Do Not Disturb**
- **Last Call Return**
- **Last Number Redial**
- **Station-to-Station Dialing (Abbreviated Digit Dial**
- **Call Groups**
- **Speed Dialing**
- **Distinctive Ring**
- **Voicemail**
- **3-Way Conferencing**

Administrative Control without Administrative Headaches

Although ENA SmartVoice is a managed service, you remain in charge. Each ENA SmartVoice implementation includes an online administrative interface, where administrators can perform their own moves, adds and changes (MACs). From any connected web browser, authorized personnel can perform real-time user management, see call logs for any extension, create new call groups and hunt groups, update the telephone directory, and perform almost any other administrative task.

For larger implementations, customers can even create group or site administrators to logically split administrative tasks between multiple personnel. As part of each ENA SmartVoice implementation, ENA provides administrative training sessions to cover all the details of the intuitive but powerful ENA SmartVoice administrative interface.

Three Convenient Extension Types for Flexible Service

ENA SmartVoice is available in three convenient extension types as given below and is priced on a per-extension basis. Each site can have as many or as few ENA SmartVoice extension types as desired.

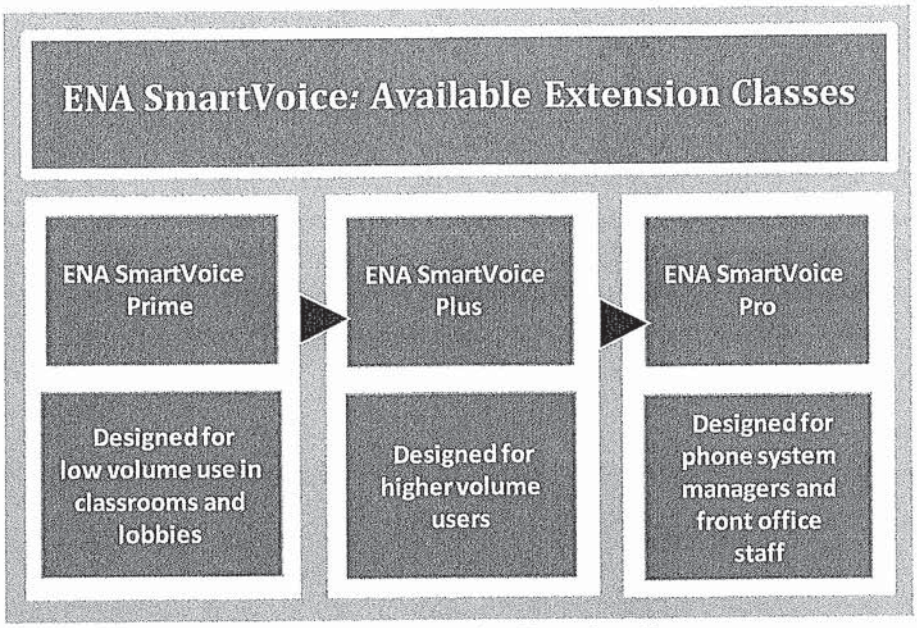


Figure 15: ENA SmartVoice Extension Classes

ENA SmartVoice Prime

ENA SmartVoice Prime is designed for classrooms and lobbies where the phone is primarily in place for emergencies and low volume use. In addition to the standard core features, this extension package includes the following features:

• **Unlimited Inbound Calls**	Access a classroom phone from other ENA SmartVoice phones at any time
• **Unlimited On-Net Calls**	Calls between ENA SmartVoice users are always included with every plan
• **250 Minutes Local and Long Distance Outbound Calling**	For occasional parent-teacher interaction and emergency calling. ENA aggregates the allotted minutes across all extensions with this package type at each location. For example, if you purchased 10 Prime packages, that would provide you with 2,500 minutes of outbound calling for all ENA SmartVoice Prime users.
• **Message Waiting Notification**	Automatic notification by phone or e-mail when a voicemail message is left for you

ENA SmartVoice Plus

ENA SmartVoice Plus is best suited for faculty, staff or support personnel whose work demands a more flexible outbound calling plan with enhanced features and call management options. These extensions combine all the features of ENA SmartVoice Prime, plus the following additional features:

• **Unlimited Local and Domestic Long Distance**	Save money on your current long distance charges since calls made within the domestic U.S. are included at no charge
• **Direct Inward Dial and Direct Outward Dial**	Inbound callers can easily reach individual extensions directly without the requirement of going through an auto attendant or front desk operator
• **Group and Directed Call Pickup**	Answer incoming calls to other users in your call group from your desk phone, not theirs
• **Busy Lamp Field**	Ability to see if another user is on their phone and reach them via speed-dial with the touch of a button
• **Caller-ID Block/Unblock**	Decide when outbound calls display your caller-ID
• **User-Controller Caller-ID Restriction**	Permanently set your caller-ID block or unblock status, rather than using a mandatory star code on each individual call
• **Time of Day/Day of Week Call Scheduling**	Only allow inbound calls to ring to your phone when you want them to, or send them to voicemail so instructional time won't be interrupted by phone calls

ENA SmartVoice Pro

ENA SmartVoice Pro unleashes the full power of the ENA SmartVoice Interconnected VoIP service. This extension package is designed to combine the enhanced capabilities of the ENA SmartVoice suite with new IP-based features.

ENA SmartVoice Pro enables advanced management of your phone service.

This extension package is designed for receptionists, phone system managers, principals, superintendents, directors, administrators, media specialists and front office personnel.

These extensions include all of the features of ENA SmartVoice Plus, with the following enhanced benefits:

1. **ENA SmartAssistant**	An application toolbar, which allows users to search their portal contacts, initiate and configure synchronization with Outlook Contacts, initiate click -to-dial outgoing calls and change their call forwarding status.
2. **Smart Call Forwarding**	Includes sequential and simultaneous ring to multiple landline or mobile phones
3. **Personalized Call Treatment**	Route calls to different Smart Call Forwarding treatments based on incoming caller-ID
4. **Call Forking**	Be reached at a single number when multiple connected devices (i.e. office headset and soft-phone) ring at once
5. **Remote Click-to-Call**	Initiate a call from the ENA SmartVoice user's portal, using a phone other than our desk phone and present your office phone number
6. **Local Call Recording**	Allows a user to record calls to a USB flash drive inserted in the USB slot in the back of their Polycom IP 650 or IP 670 phones. Simply push the record soft key and the call will be recorded directly on the inserted USB drive. The saved recording can then be accessed via the menus on the Polycom phone or the USB drive can be used to transfer the file to a computer.

ENA SmartVoice Loud Ringer

Loud Ringer is an optional extension package that is ideal for noisy areas like cafeterias, bus garages and gymnasiums. This package includes all of the features of the ENA SmartVoice Plus package plus the Call Forking feature and an Analog Telephony Adapter (ATA). ENA programs the number to ring the phone and also ring a loud ringer that is installed behind the ATA. Customers are responsible for purchasing the loud ringer equipment. ENA will recommend a loud ringer from a list of models that tested successfully in our lab environment.

• **Call Forking**	Have your desk phone and the loud ringer ring anytime you receive a call
• **Analog Telephony Adapter (ATA)**	Device used to connect one or more standard analog devices to a VoIP telephone system

ENA SmartVoice: Features-at-a-Glance

	Prime	Plus	Pro
Features			
Enhanced Network Call Quality Monitoring	o	o	o
Busy Lamp Field		o	o
Caller ID	o	o	o
Call Waiting	o	o	o
Last Call Return	o	o	o
User-controlled Caller ID Restriction		o	o
Direct Inward and Outward Dial (DID/DOD)		o	o
Call Forward to Voicemail	o	o	o
Distinctive Ring	o	o	o
Call Hold	o	o	o
Call Transfer	o	o	o
Redial	o	o	o
Messaging/Music on Hold	o	o	o
3-way Conference	o	o	o
Speed Dial	o	o	o
Online Interface	o	o	o
Click-to-Call	o	o	o
Call Completion Busy Service		o	o
Anonymous Call Blocking		o	o
Bridged Line Appearance		o	o
Call Forking			o
Call Forward Variable		o	o
Call Park and Call Pick-up	o	o	o
Call Scheduling (Time of Day/Day of Week)		o	o
Local Call Recording ***			o
Smart Call Forwarding			o
External Call Transfer	o	o	o
Outbound Caller ID Block/Unblock		o	o
Remote Click-to-Call			o
ENA SmartAssistant			o
Directed Call Pick Up		o	o
Group Call Pick Up		o	o
Live Messages Screening			o
PBX Features			
Station-to-Station Dial	o	o	o
Auto Attendant*	o	o	o
Hunt/Rollover Groups*	o	o	o
Calling Plans			
Unlimited Inbound Calling	o	o	o
Local and Domestic Long Distance (Minutes)	250	Unlimited**	Unlimited**
Local Number Portability	o	o	o
Unified Messaging			
Voicemail	o	o	o
Visual Voicemail	o	o	o
Forward to E-mail	o	o	o
Message Waiting Indicator	o	o	o
Outdial Notification		o	o

*Additional charges apply **Some restrictions may apply to unlimited minutes calling services. Unlimited long distance applies to lower 48 U.S States only. ***Only available on the Polycom IP 650/670 phones.

Figure 16: ENA SmartVoice: Features-At-A-Glance

Handsets

ENA partners with Polycom and Aastra to provide industry-leading, feature-rich handsets at very affordable prices. We offer a wide range of Polycom and Aastra handsets specifically configured to work seamlessly with ENA SmartVoice. Each handset type has undergone a rigorous testing process in order to guarantee reliability and feature compatibly to ensure all ENA SmartVoice users a world-class telecommunications experience. Please see **Exhibit 6** for a detailed listing of Polycom and Aastra handsets.

Handset Acquisition

The Polycom and Aastra handsets are factory-configured, tested to work with ENA SmartVoice, and are currently only available from ENA. ENA continues to evaluate new handsets to add to our portfolio. Only those IP handsets purchased from ENA can be used with ENA SmartVoice services.

Warranty and Advance Replacement

All handsets purchased through ENA carry a one-year factory warranty. If a problem with an ENA SmartVoice handset occurs, the customer can contact the ENA CTAC. A new IP handset will be shipped to match the specifications of the handset that is being returned. Once the new handset is installed, the customer then returns the original handset in packaging provided by ENA. Shipping and handling charges for advance replacement may apply. If the handset is not under warranty, the additional unit is billed to the customer.

ENA SmartLink

ENA SmartLink is a trunking solution designed to provide inbound and outbound calling for customers who already have their own installed traditional or IP PBX or phone systems. ENA SmartLink works just like your current telephone line service, but offers an extensive set of features and a variety of different interconnection methods to meet both current and future needs, all delivered for a single, cost-effective monthly fee. This solution replaces existing PRI and analog phone lines, and extends the life of your existing PBX equipment while bundling multiple enhanced features and unlimited-minute calling plans.

With ENA SmartLink, customers can keep their current telephone numbers and do not need to upgrade or change their internal telephone equipment. ENA SmartLink offers crystal-clear voice clarity and carrier-class reliability. ENA SmartLink includes full E911 emergency calling capabilities, 411 information services and standard information and telephone book directory listings. Complex directory listings are available in certain markets. **Unlike traditional telephone company offerings, ENA SmartLink includes a number of features at no additional charge**.

Figure 17: ENA SmartLink Features

Because no network or PBX upgrades are required to begin enjoying the benefits of ENA SmartLink, environments with an existing PBX system will immediately benefit from the rich feature set and lower cost approach of our dial tone service. Please note, the use of certain features require the support of the PBX. Our simple billing method allows us to provide one-page, straightforward monthly bills.

ENA SmartLink provides dial tone service directly to your existing PBX or key systems. ENA SmartLink can be configured to deliver both one-way and two-way trunks and can utilize analog, PRI, or SIP handoff. We support all common North American PRI signaling methods. We provide full 23 channel PRI service; partial PRI service is not available.

The point of demarcation for ENA SmartLink service is generally in the same room where your WAN connectivity enters your building. We install an ENA-managed, ENA-owned gateway that provides analog or PRI handoff to your PBX or key system. ENA will install its own 66 block (also called M-block) in order to provide interconnection to premises equipment.

ENA SmartLink is Offered in Three Different Connection Classes:

1. **ENA SmartLink Analog** – Inbound/outbound calls are delivered over your IP infrastructure and translated to a standard analog connection to terminate to your PBX or Key System.
2. **ENA SmartLink PRI** – Inbound/outbound calls are delivered over your IP infrastructure and translated to standard PRI to terminate to your PBX.
3. **ENA IP SmartLink** – If your organization utilizes an IP PBX capable of SIP trunking, such as Cisco Call Manager, ENA offers IP SmartLink that creates a direct SIP trunk between your IP PBX and ENA's voice platforms. Calls between your locations and the external world are delivered directly over these SIP trunks which allows for more scalability. It is also much more cost-effective, as it does not require the purchase of expensive line cards or gateways.

Optional ENA Voice Features*

911 Dial Notification**

Any time an emergency (911) call is made from an ENA SmartVoice extension in your district, specific personnel can be immediately notified by e-mail. The notification will include the exact time the call was made, the extension or line that made it and our current location information associated with the extension. This allows you to know immediately of any emergency in your organization, and be able to respond to the emergency as quickly and efficiently as possible. A sample of the body of the e-mail is included below.

```
Call Time: Wed Nov 2009 4 15:41:36 CST
Source Extension: 19XX
Source Phone Number: 615XXXXXXXXXXX
Subscriber ID:  Jonah Jones
Destination Number: 911
Location:
TenantID: tnXXXX
```

Figure 18: 911 Dial Notification - Sample Call Made Display Information

Once the call has been completed, we provide a second e-mail notification detailing the duration of the call. This will help identify potential misdials versus true emergency calls.

ENA SmartFax

For Fax over IP (FoIP), ENA recommends ENA SmartFax, a highly reliable, carrier-grade solution that allows seamless delivery of fax transmissions to and from the public switched telephone network (PSTN) over ENA's managed network connectivity. Unlike many other FoIP solutions, ENA SmartFax buffers faxes locally before dispatching a fax into the ENA fax network for transmission. We prevent many of the frustrations associated with faxing over an IP network by using SSL over HTTP to transmit faxes instead of G.711 or other codecs designed primarily for voice communication. Upon completion of transmission, the ENA SmartFax service sends back a completion notice to the sending fax machine.

ENA SmartFax also includes an optional fax-to-e-mail service for both fax transmissions and sent notifications.

ENA Toll-Free

ENA provides a cost-effective toll free service that can be used in conjunction with either ENA SmartVoice or ENA SmartLink voice service. ENA can provide toll-free directory and 411 information listings as part of the ENA Toll-Free service.

Auto Attendant**

ENA offers the ability for incoming calls to be answered by an automated attendant. The automated attendant will prompt callers to make selections using their touch-tone phone to be routed to the appropriate party. Customers can determine what options are presented to the caller, including the ability to dial by name/extension, transfer directly to predetermined extensions, or to reach an operator. Customer administrators are able to record their own greetings and prompts and can set up different greetings for different times of the day.

Stand-Alone Voicemail Boxes**

ENA SmartVoice customers may wish to offer some of their users a stand-alone voicemail box, which would allow callers to leave incoming messages for users who do not have their own individual handset but need voicemail capabilities.

Intercom System Integration

ENA SmartVoice can integrate with a wide range of analog and IP-based intercom systems. As each system is unique, we handle each intercom integration request separately from a consultation and pricing perspective.

Weather Alerts**

ENA SmartVoice offers the ability to have weather alerts displayed on Polycom IP phones. The information is downloaded directly from the National Weather Service (based on customers' individual weather zones) and is refreshed every five minutes. Due to screen size limitations, this feature is only available on Polycom IP 550, 560, 650 and 670 handset models.

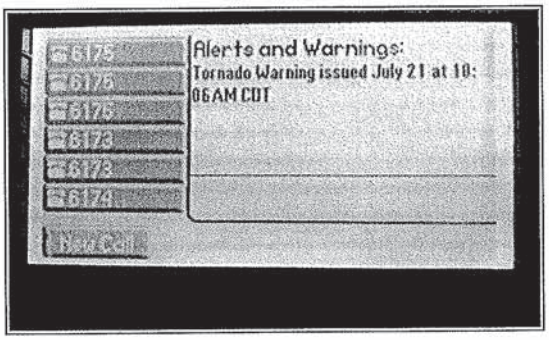


Figure 19: Sample Weather Alert Phone Display

* Optional features may vary by phone model.
**These optional voice features are only available with ENA SmartVoice service.

Modem-Based Technologies and ENA Voice Services

Since ENA's telecommunications solutions utilize VoIP technology, ENA does not recommend or support the use of modem-based services on ENA SmartVoice or ENA SmartLink service. Modem-based technologies include postage machines, HVAC monitoring devices, and others. For service to those devices, as well as for service to alarm or other monitoring systems that should be able to communicate during prolonged power outages, ENA recommends the use of true, CO-powered POTS lines. For faxing, ENA recommends ENA SmartFax.

The solution must include:

Adds, moves and changes to end user telephony setup. ***(Addresses Functional Requirement C.9)***

As part of the ENA SmartVoice service, customers are provided with access to an Administrator Portal. The Administrator Portal is available from any Internet connection, and allows authorized personnel to perform real-time user management, see call logs for any extension, create new call groups and hunt groups, reset PINs and passwords, update the school telephone directory, and perform almost any other administrative task, including standard moves, adds, changes, and deletion requests (MACD).

The option for the vendor to be responsible for handset deployment, replacement and maintenance. ***(Addresses Functional Requirement C.10)***

All ENA SmartVoice IP phones come with a one-year advanced replacement warranty, though multi-year warranties are also available upon request. In the rare event that a customer encounters a problem with a phone, the customer can contact the ENA Customer Technical Assistance Center (CTAC), and ENA will ship out a replacement, along with a prepaid return label for the customer to return the non-functioning handset. ENA offers handset deployment as an optional service in conjunction with our ENA SmartVoice service.

The design should allow for the independent functioning of data and voice without adversely affecting the other. ***(Addresses Functional Requirement C.11)***

On the ENA network backbone, ENA provides end-to-end quality of service (QoS) and other best practice traffic segmentation to guarantee service availability even in the unexpected event of network saturation. For complete independent functioning of data and voice, the customer's LAN environment should be comprised of managed layer 2 Ethernet switches that support both 802.1p and 802.1q (QoS and VLANS), so that ENA voice traffic can be both protected and separated from standard data traffic on the customer's own network. ENA provides a list of preferred and acceptable switches that meet these criteria as part of any ENA voice implementation and can help participating Consortium school districts configure their LAN environment to meet the most recent best practices for VoIP deployment.

Pricing separately for classroom and office appropriate handsets (Not E-Rate eligible). ***(Addresses Functional Requirement C.12)***

ENA offers a robust portfolio of ENA SmartVoice-compatible VoIP phone handsets in conjunction with our ENA SmartVoice service, including phones that have been deployed in thousands of classrooms and district administrative offices throughout the State of Tennessee. ENA describes our current portfolio of phone handsets in **Exhibit 6** and provides phone handset pricing in **Tab III. Compensation and Cost Data**.

4. Technical Requirements for Managed Video Conferencing (Addresses Functional Requirement D)

To meet and exceed the managed videoconferencing requirements of SCS and participating Consortium school districts, ENA is pleased to propose ENA Live. ENA Live is a desktop videoconferencing service that enables school systems and libraries to easily and cost-effectively offer personal videoconferencing, distance learning, teacher sharing, virtual field trips, and professional development opportunities to students, faculty and staff. It does not require expensive, dedicated video hardware; instead, it utilizes your existing Intel-based Mac- or Windows-based computer equipment to deliver videoconferencing ubiquitously across your existing network infrastructure. ENA Live also will connect through an Android or iOS-based mobile device (iPhone/iPad) providing an excellent platform to extend videoconferencing in a wide range of mobile applications. As video communications become integral to distance learning, professional development and enhanced communications, the limitations of the current hardware-based videoconferencing solutions have become apparent. Beyond the considerable expense of the systems themselves—not to mention the dedicated videoconferencing rooms and dedicated network facility they often require—users have been forced to bear less-than-optimal performance as well as overly-complex systems.

ENA Live is a cloud-based solution hosted in the core of the ENA network that delivers high-definition (HD) videoconferencing as a service utilizing your existing network infrastructure, thereby reducing the overall total lifecycle costs. Unlike solutions from Cisco (TANDBERG), Polycom, and LifeSize, ENA Live requires no specialized equipment or network infrastructure, and does not add another complex burden to your IT staff by adding this capability to your organization. There are no complex technologies for your staff to learn and administer. With ENA Live, all that is needed is a quality USB webcam and an Intel-based Mac or Windows-based PC or an Android or iOS-based mobile device, and users are ready to participate in HD multipoint videoconferencing calls with other participants on the ENA network or throughout the world. Additionally, ENA Live interoperates seamlessly with the H.323 equipment you may have already deployed, so it actually enhances and expands your investment in legacy video hardware while allowing new up-front capital costs to remain low.

"ENA Live is helping us to do our jobs better. That's what a good tool does. I am convinced this is a good product and ENA's support is taking care of me like they've always done. ENA's technical product manager has been very helpful and is always available."

Gary Sharp, Director of Technology
Monroe County Schools, Tennessee

ENA Live videoconferencing features include:

- Intuitive graphical user interface
- Control of personal screen layouts
- Multipoint videoconferencing capability
- Automatic updates to client software
- Intel-based Mac and Windows-based PC support
- Android or iOS-based mobile device support
- HD resolutions 720p 30fps
- Automatic adaption to network bandwidth conditions and CPU utilization
- Built-in echo cancellation
- Data sharing
- Personal videoconferencing
- Interoperability with H323 systems
- Automatic firewall traversal
- Record, playback and live streaming options

The information below highlights some of the benefits and uses of ENA Live. Please see the ENA Live brochure in **Exhibit 7** for more details.

Benefits and Uses of ENA Live

* Enable personal videoconferencing **everywhere at anytime**
* Provide **cost-effective** distance learning
* Offer real-time **professional development**
* Provide **multi-person videoconferencing** to PC and Intel-based Mac users or Android or iOS based mobile devices
* **Host meetings** and invite guests with **up to eight participants per room**
* **Collaborate** on projects
* **Share** presentations and other desktop-based applications
* Access **outside experts**
* Launch **virtual tours**
* **Connect** to H.323 legacy equipment and/or high definition video
* **Save** travel **time** and **cut expenses**
* **Extend** and **enhance** communications with an **easy-to-use tool**

Finally, with ENA Live, users can do so much more than real-time video. They can also share files, presentations, entire desktops, and digital whiteboards—allowing rich collaboration in person-to-person and classroom-to-classroom videoconferencing environments. Customers can easily and cost-effectively offer distance learning, teacher sharing, virtual field trips and professional development to students, faculty and staff. See the ENA Live brochure in **Exhibit 7** for "50 Ways to Use ENA Live" with more ideas on how to use ENA Live.

ENA Live Additional Features and Benefits

Scalable Video

ENA Live features stunning HD video for up to eight simultaneous participants per room. ENA currently supports up to 1080p calling using the H.264 Scalable Video Coding (SVC) codec. SVC is designed to detect network throughput, latency, dropped packets and other factors that may affect real-time video quality. SVC automatically and continuously negotiates the best picture resolution and frame rate between each client of the video call, rather than all participants at once, as is delivered with legacy H.323 systems. Since it is possible to use ENA Live to videoconference with users and classrooms anywhere in the world, we utilize the spatial scalability toolkit available as part of the SVC codec to drop resolution details but maintain natural fluid motion during times of high packet loss or network congestion which can occur on the public Internet. Packet loss of as little as two percent will affect legacy (such as Polycom and Cisco) video sessions with negative video quality, however, ENA Live can handle that and more—with little to no impact.

Inviting Guests

In addition to calling other ENA Live users (or classrooms), ENA Live also makes it possible to participate in videoconferences with guests via an easy to download video client. Guests can be parents, teachers, librarians, subject matter experts, faculty members in other schools or libraries or virtually anyone not currently using ENA Live. Guests are not required to sign up for any service. They simply click the custom URL included in the invitation to participate in an ENA Live videoconference and they are then prompted to automatically download the video client.

Connecting to Legacy Equipment

Although ENA believes the future of videoconferencing is in cloud-based services such as ENA Live, we also understand that many schools, libraries and education content providers have previously invested in dedicated H.323 equipment from manufacturers such as Cisco (TANDBERG), Polycom and LifeSize. ENA Live enables users to directly call H.323 equipment by dialing the equipment's IP address. We take care of all the SIP/H.264 to H.323 conversion automatically, and can enable video communication to many different legacy devices using either standard definition or high definition video.

Sharing Desktops and Presentations

In addition to delivering high-quality, real-time video communication to users almost anywhere, ENA Live provides supplemental features and functionality such as the sharing of presentations, documents, images, and entire Intel-based Mac and Windows desktops. Multiple participants can even share different files at the same time, with videoconference members able to toggle back and forth between the different shared applications.

No Reservations Required

Unlike traditional, hardware-based videoconferencing solutions which have limited ports available for multi-person calling, ENA Live is designed to be available anytime, anywhere. Users are not required to

reserve ports ahead of time for multipoint calls. To initiate or receive person-to-person or multipoint video calls, ENA Live users simply log into the service.

Record and Live Streaming

The Record and Stream feature in your videoconferencing system enables you to record videoconferences and make webcasts that can be viewed by other people in your organization, and, if you allow it, the general public.

Record and Stream allows you to:

- Store a recording in the video library for later viewing
- Record a live webcast using Adobe Flash video
- Record a webcast for later broadcast
- Record an ENA Live videoconference or direct call
- Record and webcast from any ENA Live endpoint (laptop, desktop, video room) from which you can hold a conventional videoconference
- Make your recordings available to only yourself, everyone in your organization, and even the general public over the Internet, if desired

With the ENA Live Record and Stream feature, you can make a recording without webcasting it, but you can't make a webcast without recording it.

Mobile Video

Via our partnership with Vidyo, mobile clients for ENA Live are available for many iOS and Android OS smartphones and tablets. Each mobile operating system has a separate client application that must be downloaded and installed onto the mobile device. Vidyo has mobile clients that work with ENA Live for Apple iOS devices as well as for a number of different Android 2.3 and later devices. Vidyo clients are available in the Apple App store as well as the Google Play store.

Simple, Powerful Collaboration

From the end user's perspective, ENA Live is comprised of two simple components:

1. An elegant, easy-to-use web interface
2. A software client from our partners at Vidyo installed on your computer or mobile device

The client turns almost any PC running Windows 7, XP, or Vista, almost any Intel-based Mac running Mac OS 10.5.x and above, and a number of different iOS and Android devices into true HD videoconferencing systems. The ENA Live web interface allows users to log into the service, initiate video calls, and control meetings and public video classrooms. Additionally, when ENA Live is combined with other devices like HD overhead projectors or digital white boards, the learning environment can be completely transformed into a truly interactive and collaborative experience.

Please note that though ENA has attempted to make ENA Live as interoperable with as many computers as possible, there are certain minimum requirements for RAM, hard drive space, and CPU capacity. Additionally, not all iOS and Android devices are supported for use with ENA Live, though most are. For a complete list of desktop or mobile device requirements and compatibility, please see your ASM.

ENA Live Service Management

Once signed up for ENA Live, ENA provides customers with a unique URL to access the service. All of your users will access this URL to log into the service and initiate videoconferences. The first time a user logs into the service from a computer that does not have our partner client software installed and running, the ENA Live web interface will prompt the user to download and install the client before any other action can occur.

Each organization using ENA Live will have a choice as to whether its users will be able to make and receive calls from other ENA Live-enabled organizations or whether it is preferred to keep the organization separate from other groups using the service. As an example, if the organization is kept private, when organization users login, they will be able to see all other ENA Live users and classrooms within the organization, but they would not be able to see or find users within other organizations also using ENA Live. Alternately, ENA can link organizations together to allow users to view and initiate calls to users at other ENA Live schools and libraries. There is no additional cost for this feature; however, it is optional and available upon request.

Each named ENA Live user within the customer's organization will receive a private ENA user ID and password. For users who already have an ENA user ID to access ENA Mail, Authorized Override, or the ENA Service Center tools, once provisioned, the same user ID and password will also work for ENA Live once the service is set up.

Once logged in, each individual user manages his or her account and room(s) via the ENA Live web interface. When a user is hosting a multipoint videoconference, the web interface will allow the hosting user to monitor and manage all the connections to the videoconference, including mute, turn off or on video or remove other participants from the call. No organization-level technical administration of the service is required.

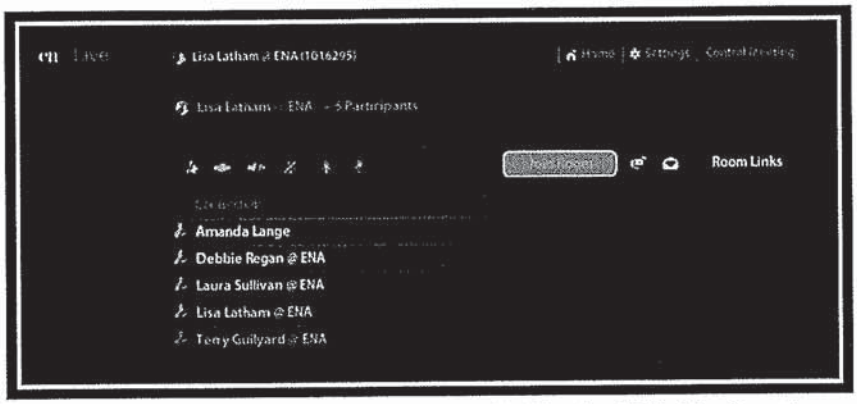


Figure 20: Video Meeting Controls Available Via the ENA Live Interface

Product Options

For each individual ENA Live account holder, four different options are available that will determine the number of other individuals or classrooms the account can host. Each ENA Live account is set up with a specific capability to provide up to eight endpoint, four endpoint, three endpoint or two endpoint sessions. The pricing level is set based on the endpoint capability selected.

For ENA Live Classroom accounts, there are two different options available that determine the number of other individuals or classrooms the account can host—eight endpoint and four endpoint.

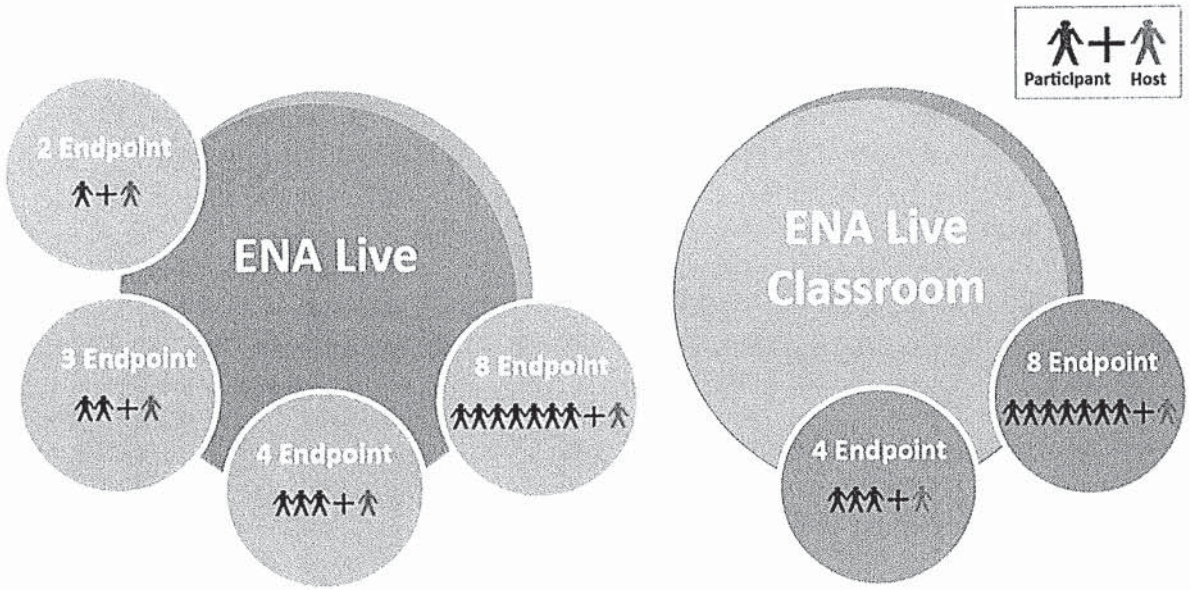


Figure 21: Available ENA Live Options

As you begin to think about how ENA Live will be deployed within your organization, it will be important to assess your main objectives for videoconferencing, which will help guide you to select the proper number of users and rooms that will be needed and what type of multipoint capability each room needs.

Purchasing Camera and Audio Equipment through ENA

Customers may purchase camera and audio equipment directly through ENA. This is made possible through partnerships with equipment providers. Single equipment purchases, bundled equipment packages and complete room systems are available. Pricing is provided in **Tab III. Compensation and Cost Data** of this response.

All equipment comes with standard factory warranties and warranty coverage is provided directly from the manufacturers according to their warranty program. For this equipment, ENA is simply a distributor and customers should contact the manufacturer directly for any defective equipment, warranty issues or trouble shooting. However, if the equipment is damaged during shipping, ENA will schedule replacement equipment.

Recommended Equipment

ENA Live is designed to be as simple to use as possible. It is a plug and play service and all you need is an Intel-based Mac or PC, or an Android or iOS-based mobile device, a network connection, and a standard web camera or speakerphone or headset to establish an HD ENA Live endpoint. Built-in speakers and cameras will definitely work with ENA Live; however, users may experience variable quality during the videoconference, and most will not support HD video. ENA recommends standardizing your cameras and audio devices across your organization for ease of use and support. ENA continually tests a variety of equipment for use with our service and we are always looking for peripheral equipment that is both cost-effective and of high quality. Presently, we recommend the following:

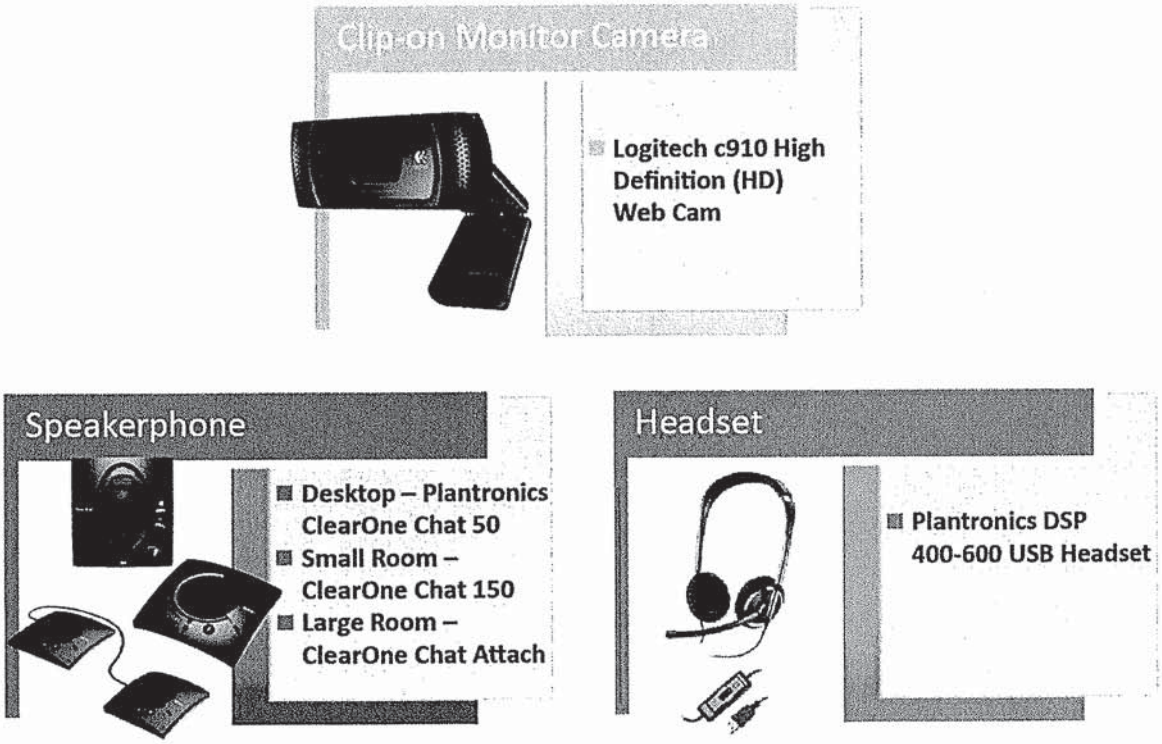


Figure 22: Recommended Equipment for ENA Live

The ENA Live Room System

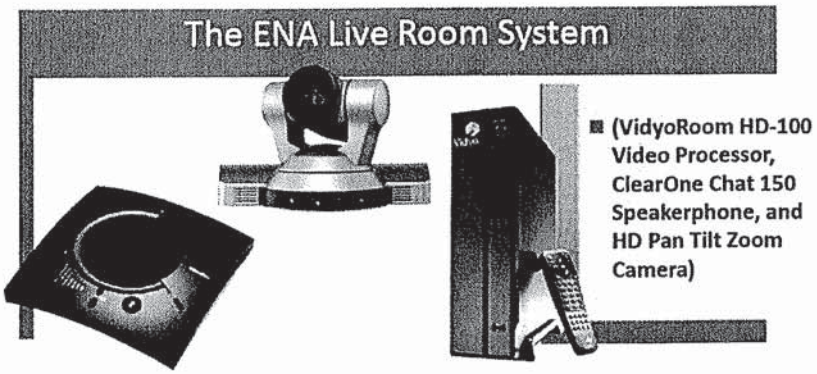


Figure 23: ENA Live Room System

ENA Live Equipment Bundles

1. ENA Live Desktop Headset Bundle

- Logitech c910 HD Web Cam
- Plantronics DSP 400-600 USB Headset

2. ENA Live Desktop Speakerphone Bundle

- Logitech c910 HD Web Cam
- ClearOne Chat 50 Speakerphone

3. ENA Live Classroom Bundle

- Logitech c910 HD Web Cam
- ClearOne Chat 150 Speakerphone
  Good for a 30 seat typical sized classroom

4. ENA Live Large Classroom Bundle
- Logitech c910 HD Web Cam
- ClearOne Chat Attach with Cable
  Good for a 60 to 80 seat classroom or small auditorium

5. ENA Live Room System

- VidyoRoom HD-100 Video Processor
- ClearOne Chat 150 Speakerphone
- HD Pan Tilt Zoom Camera
  The highly flexible HD camera is excellent for large rooms

Professional Development and Interactive Video Content

ENA provides customers with access to the Center for Interactive Learning and Collaboration's (CILC) nationally recognized and comprehensive catalogue of interactive video content. **CILC's Content Provider Program allows customers to participate in live, interactive videoconferences with subject matter experts, historians, educators and librarians from all around the world.**

CILC currently offers over 1,300 different interactive video content sessions from providers as diverse as the National Baseball Hall of Fame, the Seacoast Science Center, NASA, the Mt. Washington Observatory, and the Center for Puppetry Arts. Through ENA's partnership with CILC, member users can work to schedule and cost-effectively provide rich, engaging video content and professional development on numerous topics.

The solution must include:

Use of LEA network. ***(Addresses Functional Requirement D.13)***

ENA Live utilizes the existing LEA network. ENA Live is hosted at the core of the ENA network and is available to all to schools and libraries who utilize ENA for managed Internet access.

Remote management tool. Bridge management. ***(Addresses Functional Requirement D.14)***

All ENA Live service offerings that provide the ability to host multipoint video calls include an online video bridge management interface. Using the ENA Live web portal, authorized users are able to perform the following bridge management functions:

- Invite other users and guests to their own virtual bridge
- Initiate connections to H.323 codecs and ENA Live users from their virtual bridge
- Monitor all connected users on their bridge
- Mute/un-mute specific users or all users
- Enable/disable video for specific users or all users
- Completely disconnect specific users or all users

Proactive bridge monitoring of quality of service and security. ***(Addresses Functional Requirement D.15)***

All core components of the ENA Live service are proactively monitored by the ENA CTAC on a 24x7x365 basis. In addition to component availability and functionality, ENA also proactively monitors for security vulnerabilities and for any network conditions that can affect real-time protocol quality of service. These network conditions include lost packets, latent packets, out-of-sequence packets, and jitter (variable latency over time).

Please note that because ENA Live can be used to connect to educational content providers and other users outside the ENA network, ENA has very deliberately chosen to standardize on the H.264 Scalable

Video Coding (SVC) codec for video communication. The H.264 SVC codec allows for excellent quality video communication even in less than ideal network conditions.

Endpoint monitoring and management. ***(Addresses Functional Requirement D.16)***

ENA Live is designed to cost-effectively enable high definition videoconferencing and distance learning for schools throughout Tennessee. One of its most compelling features is the fact that it does not require the use of expensive, dedicated H.323 video teleconferencing systems like those from Tandberg and Polycom. Instead, ENA Live can be used directly from desktops and mobile devices such as iPads, iPhones, Android phones and Android-based tablets. ENA Live does not and cannot monitor each of these desktop and mobile endpoints, since they are often devices that are turned off. However, ENA Live does monitor each user of the service, and provides real-time presence information. Logged in users of ENA Live can easily determine if another user is available, online but not available, or not online at all.

In addition to ENA Live, ENA is also able to offer **Video Endpoint Monitoring and Management services for H.323 devices**. This service is an additional offering within ENA's overall video services portfolio and includes the following components:

- 24/7/365 monitoring of H.323 devices
- Nightly configuration updates of H.323 devices
- Software upgrades and updates pushed to and installed on H.323 devices as available
    - Note that this is not possible with all H.323 devices
    - Devices must be under warranty with manufacturer
- Break/fix support as needed
- Basic guidance in terms of how to use the service for meetings and distance learning

Pricing for H.323 Endpoint Monitoring and Management can be found in **Tab III. Compensation and Cost Data.**

Remote device monitoring. ***(Addresses Functional Requirement D.17)***

ENA's H.323 Endpoint Monitoring and Management Service, as described above, is available for off-network or remote devices as well as on-network devices.

Problem Management to troubleshoot any technical difficulties. ***(Addresses Functional Requirement D.18)***

See response to Functional Requirement D.19 below.

Two levels of assistance for on-the-spot troubleshooting resolution during an event as well as post-meeting evaluation and repair of any ongoing issues. ***(Addresses Functional Requirement D.19)***

ENA Live includes ENA's award-winning customer support for the life of the service. ENA will provide all levels of assistance and troubleshooting for any and all issues that may arise during the use of ENA Live

and will be responsible for handling these issues through to resolution. Furthermore, ENA acknowledges and agrees to post-meeting evaluation of reported problems and to address and repair any on-going issues detrimental to the use of ENA Live.

E. Financial Stability (Addresses Required Responses Table Item I.e.)

Describe in detail the financial stability of your company to operate at the volume potential of this contract.

ENA is fully capable of delivering the services requested and has the financial strength to perform the required services. We have a successful financial track record working with schools and libraries on long-term contracts, and we have served thousands of customers throughout the life of all contracts.

ENA is a financially responsible and stable company with a strong balance sheet and favorable operating results, ensuring ENA's long-term financial viability. In addition to our history of strong financial results, ENA has a $20 million surety bond facility with Travelers Casualty and Surety Company of America.

ENA offers its customers a recurring monthly service fee and invests significant upfront capital for equipment, construction and other costs without requiring upfront payments from our customers. ENA's strong working-capital position and banking relationships allow us to provide this high level of financial support to our customers.

ENA understands the financial cycles of delivering connectivity and communication services and receiving E-Rate funding. Our high levels of working capital and long-term banking relationships allow us to smoothly manage the cash flow needs of these services. ENA's financial strength has successfully supported the delivery of services to schools and libraries since the onset of the E-Rate program, and we are financially prepared to support delivery of services requested.

Copies of our audited financial statements for the last three fiscal years are located in **Tab VII. Required Forms and Documents.**

F. Timeline for Installation (Addresses Required Responses Table Item I.f.)

Describe in detail the timeline for installation for the three categories of service as listed in the title of the RFP

ENA recognizes that each school district participating in this Consortium will have individual requirements concerning the scope of services desired and the timing for delivery of those services. In general, we believe the school districts will fall into one of three major categories:

A. Districts currently receiving managed Internet access services, WAN, voice and/or video services from ENA and are not actively seeking additional services.

B. Districts currently receiving some elements of managed Internet access services, WAN, voice and/or video services from ENA, but who are seeking additional services.

C. Districts currently receiving no services from ENA, but seeking to procure services from ENA.

ENA's first project phase will encompass performing a comprehensive assessment of the services required by each district.

- If those requirements are currently being satisfied by ENA, we will continue to monitor, manage, and support the delivery of those services as we do today, and ENA Account Services Managers (ASMs) will continue to provide uninterrupted customer care coverage.

- If there are additional services required for customers currently receiving services from ENA, we will work with each district to fully understand and document requirements, and will implement the services according to those requirements.

- For districts seeking to procure new services from ENA, the ENA ASM will work closely with the district to fully understand and document requirements, including E-Rate implications, and will assist the district in placing orders for the services desired.

Once orders for new and/or additional services are received by ENA, an ENA Project Manager (PM) will be assigned and work will commence to provide the services requested. At a high level, the project for implementation of all new ENA services will be initiated via a project kickoff, described below:

"ENA is one provider I can depend on to deliver services for our district at a level second to none."

Joey Trent, Technology Coordinator
Elizabethton City Schools, Tennessee

- **Project Kickoff** – During this phase, ENA will work closely with district personnel assigned to the project to:
    - Clearly define overall project success and acceptance criteria
    - Identify key stakeholders
    - Review overall solution architecture
    - Review high-level project plan
    - Identify any unique requirements or situations not previously articulated that could impact the project
    - Define the project team, including roles and responsibilities
    - Set the project cadence, including technical, project and executive communications and meetings
    - Identify key milestones, deliverables, and phase exit criteria
    - Identify critical dependencies

Following the kickoff meeting, the project approach will differ based on the services to be deployed. We have outlined deployment processes for the primary service areas provided in our Proposal Response below:

ENA Managed Internet Access and WAN Services

For managed Internet access and WAN services, the process will proceed in phases as documented below, subject to the specific scope of SCS's or the individual participating Consortium school district's requirements. In some cases, new or additional Internet access will be required, in other cases only new or additional wide area network (WAN) connectivity will be required, and in some cases both may be required. The process below provides a comprehensive view of implementation inclusive of all managed Internet services; the individual participating Consortium school district plan will be customized appropriate to the services requested. A representative schedule for implementation of these services is included later in the description.

	Service Aggregation Site(s)	End Sites
PHASE I	• Site visit • Entrance and physical facility preparation • Rack, test and configure ENA aggregation equipment • Integrate ENA aggregation equipment with the district's existing network • Install new internet access circuit and test • Activate site in ENA network management platform and perform acceptance testing with the district • Install new carrier aggregation circuit or individual end site-serving circuits and test	• Site visit • Entrance and physical facility preparation • Install carrier circuits • Rack and test ENA service termination equipment
PHASE II	• Make configuration and routing changes to support migration of existing sites to ENA aggregation infrastructure	• Configure and connect ENA service termination equipment to district end site LAN • Activate end site in ENA network management platform and perform acceptance testing with the district

Figure 24: Phased Implementation Plan

Phase I and Phase II will overlap at certain points along the timeline, and elements of activity will occur sequentially at each end site and in parallel across multiple end sites as service is installed and activated.

Phase I – End Sites and Services Aggregation Site Preparation

ENA suggests the following process for Phase I. We will work with SCS and each participating Consortium school district to determine available resources and requested timeframes and are open to adjusting the project schedule and required resources in order to fit the district's desires.

End Sites

In order to catalog the existing physical building infrastructure and telecommunications entrance facilities, each location in scope must be visited by ENA engineering staff, the appropriate telecommunication carrier partner and district staff.

ENA will lead a team comprised of ENA field engineers, our selected underlying network carrier, and district staff to perform a detailed site survey of every location to receive service at the beginning of the project. This survey will be conducted according to the ENA standard process, which will result in a comprehensive checklist of site attributes and readiness to accept the new service. The resulting detailed report will be provided to district staff at the conclusion of the site visits.

The purpose of the site survey is to identify all requirements to assure the site is ready to accommodate the new service. ENA will work with our underlying carrier to determine the path into the site from the nearest pole or handhole, what construction, if any, is required to place the fiber cable (e.g. buried conduit, building-attached fittings, etc.), whether sufficient capacity exists in existing building entrance conduit or whether a new bore is required, and whether anything is required of the district to provide sufficient rack space, power, ground, backer board, and/or inside conduit exist to support the new circuit equipment. An example of the **ENA Site Survey Checklist** is provided in **Exhibit 8**.

ENA suggests that the district team allocate one to two weeks to complete the requisite site visits. The assigned ENA PM will coordinate in advance with the dedicated district team, the appropriate telecommunications partners and ENA engineering staff to schedule approximately five to eight site visits per day. The final schedule will be determined based upon district resource availability and concurrence with the site visit plan.

ENA suggests that the district assign a dedicated team of district staff with the following areas of knowledge to participate in each of the required site visits:

- **Facilities Services** – Building support and maintenance staff with knowledge and authority to make decisions regarding building entrance for telecommunications facilities and inside building requirements for routing facilities and providing necessary infrastructure to support installation

- **IT Staff** – Network support with an understanding of site equipment and LAN connection who is authorized to make necessary changes as a part of the network transition.

Any facility, physical or demarcation changes that may be required in order to support new services and/or comply with BICSI-standard requirements are outside of the scope of services of this response, and will be jointly reviewed and assigned to the appropriate district staff to oversee timely completion. Our telecommunications carrier partners will not begin their work to build facilities to a site until all site preparation work is completed by the district. ENA's PM will track assignments that result from these site visits and report any delays in completion to the appropriate personnel. Delays in completion of this work could jeopardize timely completion of this transition plan. The majority of the time required in order to successfully install ENA's service at each site will occur between the initial site visit and the carrier's circuit-installation date. During this timeframe, the district will need to make its facilities

available on an ongoing basis to ENA's selected carrier to perform site-preparation and installation work. Any delays in providing access or appropriate approval to perform the required work at the district's facilities during this time will delay service implementation.

Once the carrier installs their circuit at the end site, the ENA project manager will schedule ENA field teams to visit the site and rack the appropriate ENA service termination equipment in preparation for service transition in Phase II.

If ENA is the successful Respondent, in order to ensure migration timeline compliance, we would like to begin the site visit process once a recommendation is formulated to the SCS board and a contract is in place that is acceptable to both parties. This jump start will further ensure migration timeline compliance and success of this project.

Service Aggregation Site

ENA will establish one or multiple service aggregation points, depending on the unique needs of each district. ENA, the district and our telecommunications carrier partners will visit the site to (a) evaluate current communications entrance facilities for capacity, (b) review current communications demarcation location for adequate power and space, and (c) review any changes necessary to support new services. Any facility, physical or demarcation changes that may be required in order to support new services and/or comply with BICSI-standard requirements are outside of the scope of services of this response, and will be jointly reviewed and assigned to the appropriate district staff to oversee timely completion. Our telecommunications partner will not begin their work to build facilities to a site until all site preparation work is completed by the district. ENA's PM will track assignments that result from these site visits and report any delays in completion to the district project lead. Delays in completion of this work could jeopardize timely completion of this transition plan. Similar to the end site construction process, ENA's selected carrier(s) will require ongoing access to all service aggregation locations during their installation process. Any delay in providing access or appropriate authorization to construct carrier facilities may result in implementation delays.

Once the make-ready work identified through the site visit has been completed and carrier circuits delivered, ENA will dispatch our engineering team to the district to rack, test and configure the aggregation-network equipment. Carrier circuits will be connected to the ENA aggregation network equipment. The new ENA Internet access will be activated and thoroughly tested prior to migrating any of the district sites to this new service. We will perform full testing to ensure appropriate sustained throughput, performance, and error rate, and provide our results to district technology staff prior to integrating our equipment into the existing district network.

After ENA's equipment has been installed, configured and the district has confirmed acceptance, our engineers will work with the district to integrate our equipment into the existing district network. Once integrated, our engineers will activate the site in our network management platform and request final acceptance testing of this component with district staff.

Phase II – End Site Service Transition

Each end site will be transitioned to the new ENA infrastructure one site at a time to ensure minimal downtime during district business and/or school hours. Service transitions will occur once ENA's telecommunications carrier has successfully installed a circuit at the end site. ENA's project staff will be notified by the carrier of this event and will coordinate service transitions with district IT and end site staff. ENA will strive to provide notifications to the appropriate project team members 48 hours prior to service transition. In certain circumstances, shorter lead time may be provided, and the ENA PM will obtain concurrence to this deviation from required project team members prior to proceeding.

At each service transition, the following steps will be followed:

- End site telecommunications circuit will be attached to ENA's on-site equipment.
- Performance, reliability and roundtrip times will be verified from the appropriate service aggregation location to the ENA on-site equipment.
- ENA will coordinate with district staff to transition routing entries to the ENA service aggregation location.
- Connectivity to the end site LAN will be moved from the existing district router to ENA's service termination equipment on site.
- End-to-end reachability will be tested by ENA staff physically present at the end site
    - Key district applications
    - Internet access
- ENA engineering staff will activate the end site in the ENA network management platform and perform acceptance testing with district.

In the event that service transition at an end site cannot be successfully completed within an acceptable timeframe, ENA staff will back out all changes and revert to the previous district network. The ENA team will work to resolve the end site transition issues and will schedule another service transition on another mutually agreeable date.

Once a site is transitioned, ENA will monitor the site for a period of five school days. If there are no errors at the site, we will send notice to district IT staff to disconnect the previous circuit.

The chart below illustrates a representative deployment schedule for managed Internet and wide area network services, assuming new services are to be ordered and implemented for any participating school district in the Consortium.

Date	Team	Step
Mar 2013	District & ENA Leadership	Contract award, negotiation and signing
Mar 2013	ENA PM & District	Project kickoff
		Define participants, meeting schedules, project success criteria
		Define project timeline for initial District sites

Date	Team	Step
Mar 2013	ENA PM & District	**Complete inventory of current and desired connectivity, network, and managed service requirements for each District site**
		• Continue/complete survey activity to assure all site data is obtained and captured in the project data base
		• Gather contact points for each location requiring an installation
		• Obtain address and phone information for each site
		• Obtain current IP allocation plan
		• Verify current services and providers and understand district requirements and desires for future connectivity
		Key Deliverable: *Database of key site baseline information as well as service requests for 2013 E-Rate year.*
Mar - Apr 2013	ENA PM & Field Engineering	**Conduct site surveys to verify key information and determine required readiness activities for installation and transition to the ENA network**
		Site visit or phone call to each site contact to gather information
		• Verify current IP information
		• Current network information such as NAT
		• Demarc & router location
		• Space and power available for network equipment
		• Verify address, phone and alternate contact information
		Key Deliverable: *Updated and accurate site data, both present and as desired at project completion; document any required site make-ready work for affected sites*
Mar 2013	ENA Finance & District	**Initiate E-Rate process**
		• Verify E-Rate eligibility for indicated sites
		• Coordinate E-Rate filing responsibilities with the District
		Key Deliverable: *Required E-Rate documentation filed*
Mar 2013	ENA PM	**Build implementation project plan and review with the District**
		• Refine project scope
		• Build detailed milestone and task plan
		• Define which sites will transition with current infrastructure vs. those that will require new or additional infrastructure build to transition
		• Define key tasks and dates for deployment of services at each site
		• Define and agree upon key deliverables
		• Define roles and responsibilities for ENA, District team, and any designated site/school personnel
		• Define pilot transition sites, sites and timeframes
		• Define school premises visit clearance requirements
		Key Deliverables: *Project plan, roles and responsibilities document, action/issues tracking document*

Date	Team	Step
Mar - Apr 2013	ENA ASM & PM, District PM	**Create customer communication plan to apprise District constituents and set expectations regarding timeline, deliverables, ongoing communication**
		• Define communications strategy and objectives
		• Define preferred communications channels within the District
		• Draft initial and periodic communications templates including key information to be included in each, including source and recipients
		Key Deliverables: *Communication plan and templates*
Mar 2013	ENA Engineering	**Engineering overview, design and hardware provisioning tailored to site transition, upgrade, and/or new service requirements**
		• Create and review current and future engineering diagrams for each location and at statewide level
		• Finalize hardware requirements and place orders
		• Define required aggregation points and technology required
		• Validate site network infrastructure orders as required
		Key Deliverables: *Network diagrams and equipment/circuit orders; list of any identified engineering issues*
Mar 2013	ENA Order Management Team	**Place initial network circuit orders**
		• Validate acceptance and obtain projected completion dates
Mar 2013	ENA Order Management Team	**Place initial network hardware orders**
		• Validate acceptance and obtain projected delivery dates
Apr - May 2013	School Site Facilities	**Complete site make-ready work**
Apr - Jun 2013	ENA PM, Field & Engineering; Infrastructure Provider(s)	**Build out required circuits**
		• Establish individual projects with providers; initiate weekly meetings
		• Validate provider technology and design is consistent with ENA standards
		• Validate providers obtain necessary permits
		• Track provider status; identify and address issues as encountered
		• Coordinate site access as required
May 2013	ENA PM & District Lead	**Conduct pilot transition plans as defined**
		• Document lessons learned and apply to subsequent site transition plans

Date	Team	Step
Apr - May 2013	ENA Finance, District Finance	**Obtain District approval of billing methodology and sample bills**
		• Determine specific information required for invoicing
May 2013	Engineering	**Deploy, test and activate equipment at service aggregation locations**
		• Install, configure, test and activate aggregation routers
		• Perform integration testing to prepare for end site service delivery
May - Jun 2013	ENA PM, Engineering, Field, Site Contacts	**Site implementation and activation on ENA network**
		• Mount routing/switching equipment, connect circuit
		• Turn-up and test connectivity and performance on ENA network
		• Activate site in ENA monitoring applications
		• Complete ticket, update data base
		• Notify District of site completion
Jul 2013	ENA PM	**Project close-out**
		• Obtain appropriate concurrence sign-offs
		• Produce and distribute project completion report

Figure 25: Deployment Schedule for Connectivity Services

All project activities will be scheduled in accordance with district requirements, with particular attention to avoidance of disruption to the normal functioning of the day-to-day school or administrative operations. Work will be performed within normal business hours unless otherwise approved by the district.

ENA will make every effort to minimize the time required by district personnel and maximize the information provided by ENA to SCS and/or the participating Consortium school district. The project work plan and solution architecture has been designed to allow for as smooth and seamless a transition of services as possible. In order to facilitate this transition, the following participation will be required:

District IT Leadership

- Participate in and approve the high level project review upon project inception
- Provide documentation of the existing network architecture and relevant configuration details
- Perform E-Rate filings with appropriate information support from ENA
- Review and approve documents verifying connectivity and bandwidth
- Participate in the regular meetings

District IT Staff

- Provide current network architecture information and relevant configuration details as well as access to any existing district equipment that ENA will manage as part of this solution
- Provide adequate location, power and access for installation and/or configuration of routers and circuits
- Provide contact points for each location requiring an installation
- Provide unimpeded access for ENA and our carrier partners during the transition period to all served end sites in order to facilitate the transition
- Verify and validate Internet connectivity upon transition
- Assist and coordinate, as required, to integrate ENA's connection into the site local area network

ENA Voice Services

ENA understands the need to maintain a consistently high quality of phone service during the transition process from existing voice services to new ENA voice services, whether implementing ENA SmartVoice or ENA SmartLink. Having managed the transition of a number of high profile telephony systems, ENA is well versed in ensuring cutovers are managed in accordance with a smooth and well-orchestrated process. Within that process, however, we allow for the unique nuances of each customer's voice requirements. Therefore, we employ various survey and interview techniques to assure we have completely captured those requirements to enable us to deploy a voice solution that enhances the productivity of the user population.

At a high level, the sub-project plan will entail the following major activities and steps, differing in content based on which ENA voice offering is selected:

- **Project Initiation** – During this phase, detailed planning will occur, including:
    - Identify and document customer standards, dialing plan requirements, alarm lines, etc.
    - Completing initial data collection
        - Network/services questionnaire
        - Customer Proprietary Network Information policy review
        - Letter Of Authorization forms (to enable ENA to port current numbers)
        - Extension spreadsheet (ENA SmartVoice only)
        - Verify 911 location information
    - Initiate Local Number Portability (LNP) request
    - Schedule site assessment visits

- **Preparation**
    - Identify district phone installation team (ENA SmartVoice only)
    - Identify district phone administrator(s)
    - Perform site assessments
    - Identify any internal network adjustments required (ENA SmartVoice only)
    - District moves any shared alarm lines to dedicated POTS service
    - Coordinate telephone delivery locations and receiving method (ENA SmartVoice only)
    - Schedule install dates

- Schedule phone delivery (ENA SmartVoice only)
- Schedule port date
- Order phones and voice quality monitoring equipment (ENA SmartVoice only)
- Order fax connect equipment
- Deliver site survey document for district signoff to begin work at site

- **Installation**
  - Provide test account phones for each location to administrator (ENA SmartVoice only)
  - Provide administrator training (ENA SmartVoice only)
  - Provide installer training (ENA SmartVoice only)
  - Perform initial quality check
  - District installers deploy remaining phones (ENA SmartVoice only)
  - District administrator(s) provide user training (ENA SmartVoice only)
  - Perform LNP by site
  - Perform final quality check
  - Test 911 service
  - Provide process and education to district for subsequent move, add, change and discontinuance (MACD) services

- **Post Install (Install complete plus 45 days)**
  - Perform service satisfaction check including functionality, performance and feature usage
  - District complete removal/disposal of existing phone equipment (ENA SmartVoice only)
  - Validate and submit any required changes to the district directory listing

The typical site implementation cycle for deployment of ENA SmartVoice and ENA Smart Link services is depicted below. A larger view of this voice implementation schedule is included in **Exhibit 9**.

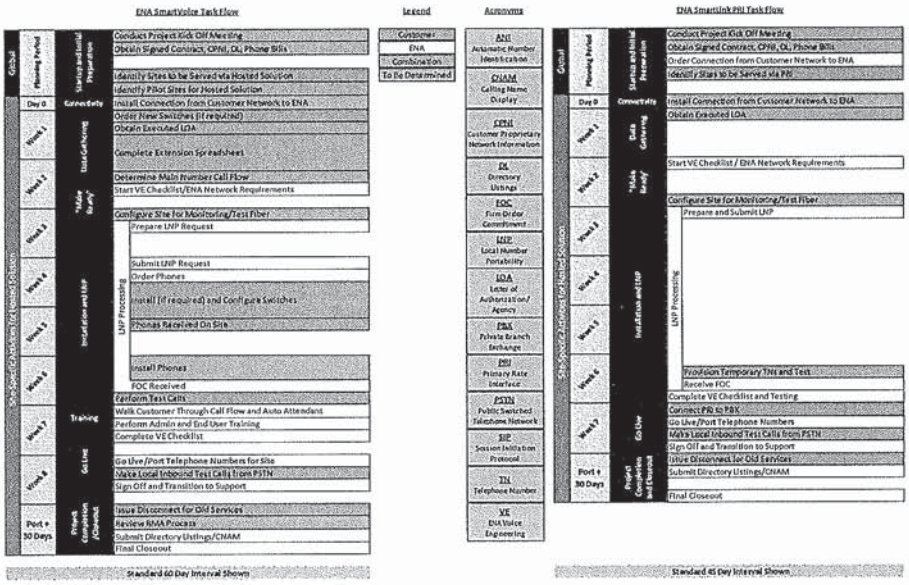


Figure 26: ENA SmartVoice and SmartLink Site Implementation Cycle

Concurrent with the deployment of the new telephones at each site, local fax machines will be connected to the LAN via ENA-provided analog-to-IP devices that will enable fax transmission and receipt using existing district fax equipment. It is critical that all existing fax devices be located, identified and cataloged during the initial data gathering activities.

Upon completion of the ENA voice deployment project, the ENA voice PM will lead a project close-out review to ensure all requirements have been satisfied, and all action items have been addressed. As this is the final sub-project, the PM responsible for the entire implementation project will initiate a full project closure process. In addition to capturing any items that will require follow up documentation changes or additional user communication, it is at this stage that we verify that all ongoing support processes have been completely tested and validated. This is a critical element to ensuring we continue to deliver a high quality level of service to the district community as we move into steady state support.

ENA Live Video Services

New Customers

As a service courtesy to new customers, ENA will provide one online training session via ENA Live and will also make available "train-the-trainer" documentation that the customer can provide to end users as desired. Additionally, an online training video will be available for self-service training. Please see an example of ENA's training guide titled "ENA Live Getting Started Guide" in **Exhibit 10.**

Timing and Duration

After an order is placed, it typically takes five business days to fully activate the users within an organization. During this time, ENA will:

- Consult with your organization to determine domain name, number of users, and type of user accounts
- Conduct a training session and provide train-the-trainer documentation
- Turn up the new ENA Live service on an agreed upon schedule or date

Client Installation Process

Organizations can pre-purchase a number of ENA Live software license client downloads which are stored in a repository or "client bank." Downloads are initiated on a PC or Intel-based Mac or an Android or iOS-based mobile device that is using ENA Live for the first time. After each download, a deduction is made from the client bank—no matter if the download is for a user within the organization or for a guest. Client software utilization is tied to the MAC address of the computer or mobile device that has downloaded the software and used it to connect to ENA Live. Once that MAC address is in our database of devices, we no longer deduct downloads from the "client bank" for any subsequent upgrades or downloads of the ENA Live client. In other words, we make every effort to only count downloads to each device once, no matter how many times the ENA Live client is downloaded or upgraded on the device, as long as the MAC address of the device itself does not change.

Guests are users who have been invited to participate in an ENA Live session, but do not have an ENA

Live account and therefore cannot control a meeting. Guests simply participate in the videoconference session. Note that guests **do** consume a new client download when installing the client for the first time on a computer or device. No additional downloads are required or consumed upon subsequent logins by that guest from the same computer or device. It is important to note that licenses are tied to the MAC address of the machine it was installed on and cannot be transferred or moved.

ENA notifies customers when their "bank" of available client downloads reaches specified depletion thresholds. Typically, an organization will need, at minimum, one client per individual ENA Live user plus additional clients for an estimated number of guests who may be invited to use the service. For example, if a teacher were to use ENA Live to conduct a parent-teacher videoconference, the parent would be prompted to download the software when logging in as a guest to the teacher's videoconference room. In this case, the client download would be deducted from your bank of client licenses, unless the parent was already an ENA Live user in which case no deduction would be made. The parent would then have the client available to participate in other video sessions at no additional cost to the organization.

Project Closeout

At the conclusion of all service implementation projects, the ENA PM will begin the transition of ongoing account support to the ASM. During that transition, both the PM and ASM will work with the district to finalize the preferred reporting frequency and content, and to establish, validate, and fine-tune the ongoing service support communications processes that were built during the project lifecycle.

G. Project Approach

Provide a detailed plan of your firm's proposed approach (including major tasks and sub-tasks).

ENA's Managed Service Approach

Many service providers claim to offer a "managed service," but **with ENA, managed service means full service**. We do not offer generic services that can be adapted to a school or library environment. Instead, our solutions are education-specific, designed from the ground up to meet the needs of education, because schools and libraries are the only communities we serve. We understand the unique technology challenges that must be addressed to enable the delivery of 21st century education and services.

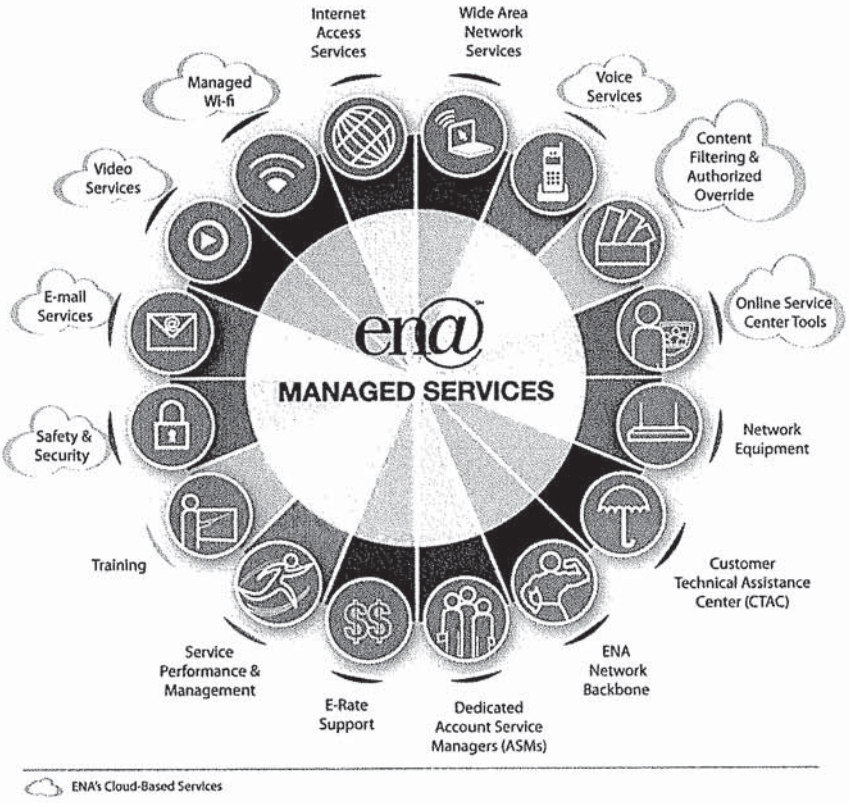
"Our service continues to exceed all expectations. ENA remains focused on the instructional goals of the classroom and providing a premier state-of-the-art learning environment in order to accomplish those goals. ENA understands the K-12 environment and the unique needs of schools."

Brandy Shelton, Data Coach/System Testing Coordinator
Greeneville City Schools, Tennessee

Compare ENA's managed service offering with traditional telecommunications and Internet service providers and you will quickly understand why ENA's solutions offer more value to our customers.

Service Is the Solution

ENA's Full Suite of Technology Services



Managed Service Means Full Service

ENA provides a full suite of managed services including Internet access, Wi-fi, wide area network (WAN), voice and video solutions in which every customer receives high-quality, turnkey services. Our managed connectivity services includes the provisioning, installation and ongoing maintenance of all circuits and equipment. All of our managed solutions include numerous value-added services at no additional cost such as E-Rate support, proactive 24x7x365 service monitoring, Customer Technical Assistance Center, online support tools, robust safety and security features, content filtering, field service and dedicated Account Service Managers.

Figure 27: Managed Service Means Full Service

ENA's applies this approach to every service we offer. Our goal is to provide a comprehensive turnkey, end-to-end solution designed for the expressed purpose of meeting the needs of K-12 schools and with a keen awareness of the resource challenges school districts face on an ongoing basis.

"Thanks for being such wonderful partners and for supporting the TC's of TN. Every day y'all prove what it means to be a corporate partner! I've never worked with a more supportive and dedicated company."

John Simi, Shelby County

Working with SCS and Participating Consortium School Districts

In response to this RFP, the manner in which ENA will apply this approach to SCS and other school districts participating in the Consortium will vary based on which of the following categories applies to the school district or the specific service being provided:

A. **ENA is the Current Provider of Service to an Existing Customer**
B. **ENA is Implementing New or Upgraded Service to an Existing Customer**
C. **ENA is Implementing New Service to a School District Not Currently Served by ENA**

A. ENA is the Current Provider of Service to an Existing Customer

ENA is already the service provider for 115 of the 136 school districts across Tennessee and serves approximately 97 percent of the school districts that have chosen to submit Letters of Agency (LOA) related to this procurement. As we already provide many of the services requested in this RFP to SCS as well as to other participating school districts, selecting ENA would eliminate the need for a time-consuming and costly transition at more than 850 sites. This would enable every school district to continue to focus their time and resources on new and innovative ways to use the network to impact educational outcomes rather than interrupting this progress for the purpose of dedicating resources to an unnecessary network migration.

Although many of the services are already in place, ENA's approach to supporting each school district throughout the life of any of our contracts doesn't change. We assign dedicated resources that maintain a thorough understanding of the districts' unique technology environments and educational goals. This helps to ensure that ENA is not only meeting each school district's current needs but enables us to proactively adjust and enhance our services to meet future needs as they change and evolve over time. As outlined in **Tab IIE. Detailed Organizational Chart and Staff Information**, with ENA's dedicated account management and engineering resources, SCS and each Consortium school district we serve can be assured that their needs and interests are being represented and communicated across ENA's entire organization to ensure continuous improvements in ENA's product and service offerings and network, voice and video effectiveness.

B. ENA is Implementing New or Upgraded Service to an Existing Customer

In cases where ENA is the district's incumbent service provider and is already providing managed network and Internet and/or voice and video services, the implementation of new services would be handled with the same rigor and superior project management processes that ENA applies to every service we deliver. The implementation of all services sought in this RFP will require involvement of several ENA teams, including technical and non-technical groups. In addition to dedicated account management and engineering resources, ENA assigns dedicated project management and support personnel resources to ensure the project is executed according to service delivery commitments and to each school district's satisfaction.

C. ENA is Implementing New Service to a School District Not Served by ENA

In the limited cases where the school district is not currently being served by ENA, we will apply a different process that begins with a discovery effort to document the district's current network environment and then identify any infrastructure, voice and video needs that are not being met as well as capture any projected future requirements. Once ENA has completed this discovery process we will begin a thorough investigation of the infrastructure options available on a site by site basis to meet or exceed the specific connectivity requirements for each site. For voice and video services we will work with the district to conduct a similar detailed discovery process tailored for those services.

With ENA's carrier-neutral approach, we can leverage a mix of solution options that, in aggregate, will represent the most cost-effective and technically superior means for meeting the district's overall connectivity and communication goals. We have found in almost every district we serve, a single carrier approach emphasizing a particular technology not only fails to recognize the depth of network complexity required to support the ongoing needs of education and the broader community, but is also somewhat of an economic disincentive because a single carrier approach fails to create a climate where market forces can drive continued innovation and more affordable access and options. **The ultimate goal should not be focused on a particular technology or carrier, but the implementation of a technology neutral model, such as ENA's managed network services approach, which will serve as the foundation for delivering a multitude of technologies and services now and well into the future.**

Major Tasks and Sub-Tasks

In **Tab IF. Timeline for Installation,** ENA describes in much greater detail the specific tasks and sub-tasks that vary based on the scope of services (data, voice and/or video) being implemented. The following outlines a high level list of the major tasks and sub-tasks associated with the implementation and support of ENA's data, voice and video solutions.

Pre-Implementation

- Develop a thorough understanding of the district's need and intended use of the service
- Develop a solution design based on each district's unique requirements
- Develop a detailed project plan

- Assign appropriate resources and establish roles and responsibilities to ensure the project's success with ENA assuming responsibility as the single point of contact for the coordination of all ENA and school district resources related to the implementation
- Establish a solid communication plan
- Conduct a thorough assessment of the district's environment based on the services being implemented (data, voice, video)
- Document results of the assessment on a site by site basis
- Identify issues and risks and establish a mitigation plan
- Schedule implementation activities with the goal of minimizing downtime and the impact on the teaching and learning environment
- Identify training requirements and coordinate the training sessions necessary to ensure the project's overall success

Post-Implementation

- Ongoing maintenance of all ENA-owned equipment related to any service ENA provides for the life of the contract
- Assistance, to the fullest extent allowable, in complying with and completing all requirements necessary to secure E-Rate funding
- Performance monitoring of all components of ENA's service via ENA's comprehensive network management system
- Proactive and timely response and resolution of all issues related to ENA's services
- Locally deployed ENA field operations staff to assure that we can maintain network reliability and be available at any school site within the committed response times
- Establish an effective and efficient escalation process based on and customized for the needs of the end users of ENA's managed networks
- Establish standard maintenance windows with advance notification of service interruption and the flexibility to adjust timing and notification to accommodate unique customer requirements

Meet with each school district on an ongoing and regular basis to ensure both current and future requirements are being met

A Future-Ready Network and Service Approach

ENA offers a wide range of technology-driven solutions and services, and our focus is on creating a stable technology platform and then delivering a variety of products and services designed to accelerate and optimize the efficient use of technology within schools and libraries. From deploying large-scale, compliant content filtering in the wake of the passage of the Children's Internet Protection Act in 2000 to expanding our portfolio to deliver 10 Gigabit and higher connectivity options along with highly reliable, next generation IP-based telephone service, ENA has demonstrated that our platform and approach matches, and even anticipates, the needs and expectations of our customers.

ENA has recently embarked on an update of our multi-year product and service development roadmap which will entail a more cohesive and integrated user interface for the products and services that we

deliver to you today and in the future. We have already committed to deliver significant updates to our voice and video services combined with all-new managed wireless services and an expansion of our content filtering product offering and features in the current calendar year. And, we do not stop there. We will hold customer feedback sessions on our product and services concepts for the next three years to ensure alignment with your needs. We understand that it is our job to bring our customers technology solutions that both anticipate and respond to our customer's requirements and expectations in a timely and creative manner and we believe that our history and experience is unparalleled by any company in our space as an innovator both in the products and services we offer and our approach to how those products and services are packaged.

Over the next three years, ENA expects to invest and grow our product and service offering in the following areas:

- **Network Connectivity:** We have already introduced and deployed private fiber in campus and other locations in close proximity to direct served sites; we intend to grow our footprint in this area both for proximate locations as well as locations that may be widely dispersed or hard to serve. We have deployed resilient service offerings within school districts and 10 Gbps links over the past two years, and expect to grow to 40 and 100 Gbps offerings in ENA's backbone and links to and within districts.
- **Security Services:** ENA intends to deploy our ENA WebSafe Pro content filtering service this year and is currently reviewing options to extend the features and functionality offered through our firewall services in the near term. With the proliferation of individuals and organized groups throughout the world whose target is to disrupt connectivity and breach databases which contain personally identifiable information, we are ramping up our product and service offerings to support our anticipated and identified customer needs.
- **IP Convergence Services:** As opposed to delivering voice, e-mail and video services as three distinct products, ENA is currently working to integrate the user interface and back end systems in order to deliver a fully converged voice, video and e-mail service that will allow us to be amongst the leaders in IP convergence.
- **Managed or Cloud Application Services:** ENA has long been a leader in the space of providing hosted services to our customers – even before the concept of the "cloud" was introduced. With the current focus on transition of premises services to hosted services to create more flexible, reliable and integrated solutions, ENA continues to remain at the forefront of this technology. We expect to have additional offerings that will provide business continuity and application hosting for your district without requiring continued investment in infrastructure at the local level.
- **Managed Infrastructure:** Extending ENA's management capability beyond the WAN or Internet access router in each school can pay dividends for districts as demands on your current resources continue to grow in line with greater adoption of technology in the classroom and throughout the district. ENA has the capability and is continuing to invest in the technical capacity to serve as your partner in managing your LAN and wireless infrastructure throughout the district. An example of this is our newest product, ENA Air, which will provide managed Wi-Fi services to schools. Whether we serve as a trusted advisor to your district or a turnkey provider of core infrastructure, ENA intends to offer our customers a managed infrastructure option in the coming years.

- **Split Horizon Management:** in order to provide shared management and visibility into the services that ENA provides for your districts, ENA intends to employ a Split Horizon Management approach. ENA's web-based Service Center will receive a number of targeted investments over the next few years that will provide greater transparency and visibility into the services that we provide for our customers. Options ranging from deep packet inspection which will allow district technical staff to evaluate, prioritize and perhaps regulate, the uses of bandwidth connectivity in the district to ad-hoc and user-driven reporting for our IP convergence and managed infrastructure services such as ENA Air, our new managed wireless service.
- **Identity Management:** The multitudes of applications and passwords currently used with teachers and students to access content and tools relevant to their classroom work as well as the desire to create a flexible framework that can provide portable student portfolio management throughout a student's education, has reached the peak of frustration due to the lack of interoperability amongst these resources. We are working with noted leaders in the field along with proven technology to integrate district-driven access and authentication services such as Active Directory, eDirectory and LDAP with these tools in a way that allows access to be granted centrally, by district technology staff, with a single username and password for the entire suite of applications and tools.
- **Application Performance:** ENA has engaged in the past with providers of video streaming services and have already begun extensive work with vendors in the assessment area who are likely to be chosen to deliver testing for the Partnership for Assessment of Readiness for College and Careers (PARCC) and/or Smarter Balanced Assessment Consortium (SBAC). We are working jointly to leverage our experience and expertise both the application and network field to adapt concepts put forward by these testing vendors to improve their ability to deliver assessments in real-world environments. We expect to continue this investment to improve the chances of success in this space for our customers and to help our customers be assessment-ready.

ENA history proves that we possess the flexibility and willingness to work directly with SCS and with every school district participating in the Consortium to enhance the overall technology experience through the expertise of ENA's resources. **The goal is not simply more technology, but efficient, widespread use of the right technology to help your people do what they do best.**

The proposed Managed Internet Access, Voice-over-IP and Video Conferencing solutions in this Proposal Response are the beginning of the path to the next generation of ENA products and services that will help drive future education initiatives and operational efficiencies.

H. Quality Assurance Plan – Service and Support

Dedicated Support Services

ENA understands that **downtime during school or library hours means lost educational opportunities** as well as lost administrative productivity. We deliver reliable service around the clock, but have focused our teams on the critical hours for schools and libraries in order to ensure that in the unlikely event of a service disruption, we are poised to immediately respond and restore service. This level of proactive customer care sets us apart from other responses you may review.

The ENA Customer Technical Assistance Center

ENA provides a 24x7x365 Customer Technical Assistance Center (CTAC) staffed with individuals highly skilled in all ENA services to provide responsive and comprehensive customer assistance on any and all service incidents and requests for service. In addition, ENA's rigorous monitoring capabilities enable proactive engagement to avoid or minimize the effect of service impacting incidents. Support calls are directed to a live person in the continental United States who is experienced in working with the customers we serve, and possess the specific skills to quickly address the incident or request, be it data, voice, video, or any of ENA's service solutions. The ENA CTAC is available via e-mail at support@ena.com and also directly by telephone, 24 hours a day, 7 days a week and 365 days a year, at 888-612-2880.

ENA's CTAC is staffed with seasoned, customer service engineers to receive virtually unlimited incident and request calls and is dedicated to the support of all services outlined in our response. Additionally, ENA provides web-based, always-available access to our issue management system.

ENA has been operating and staffing its own CTAC for managed services **locally** in Nashville, TN since 1998. During this time, we have implemented and used monitoring tools and industry-standard, Remedy-based issue management and escalation procedures to ensure quick and efficient resolution of customer problems and incidents. **Moreover, because of the experience and expertise of our CTAC customer support engineers as well as the long-standing professional relationships with the technical staff of our Tennessee customers, the majority of incidents are resolved quickly and without escalation**—providing rapid resolution and better service to our customers.

Experienced and Skilled Staff

Our CTAC Director is certified in industry best practice frameworks. The CTAC utilizes the Help Desk Institute (HDI) and embraces the framework of the Information Technology Infrastructure Library (ITIL) to support our customers. The CTAC Director is (HDI) Support Center Director certified and all of ENA's CTAC customer support engineers are certified as HDI Support Center Analysts within 90 days of employment. This means that all of ENA's CTAC customer support engineers are internationally recognized as part of the world's largest (50,000 community members) IT service and support professionals' association and certified by the industry's premier certification and training entity.

The Director and the department leads are ITIL Foundations certified. Having these certifications ensures customers are receiving enhanced customer service from individuals who possess highly-refined customer service skills employing industry recognized best practice frameworks to resolve technical

issues. ENA CTAC customer support engineers are trained to be focused on effective customer care and problem resolution as well as utilizing best practice support center processes and tools.

In addition to the certifications outlined above, several CTAC customer support engineers have achieved multiple Cisco Certifications. The CTAC Customer Support Engineers (CSE's) have obtained CCNA, CCNA Security, CCNA Voice, CCNP Switching and the full CCNP. Having these additional certifications in our support center verifies the team's ability to install, configure, operate and troubleshoot not only routed and switched networks but to support complex voice deployments. These certifications demonstrate the CTAC's ongoing emphasis on training to provide high levels of technical knowledge on all of ENA's products and services to assure the overwhelming majority of requests, such as MACs and incidents, are resolved at the first contact with ENA and without the need to escalate to internal higher support tiers.

However, if the CTAC customer support engineers are unable to resolve the problem at the first point of contact, they work directly with appropriate external source vendors or expeditiously escalate it to Level 2 or Level 3 ENA engineering teams, as described in the **Escalation Procedures** section below, depending on the difficulty and critical nature of the issue.

Our Key Principles to Supporting Customers:

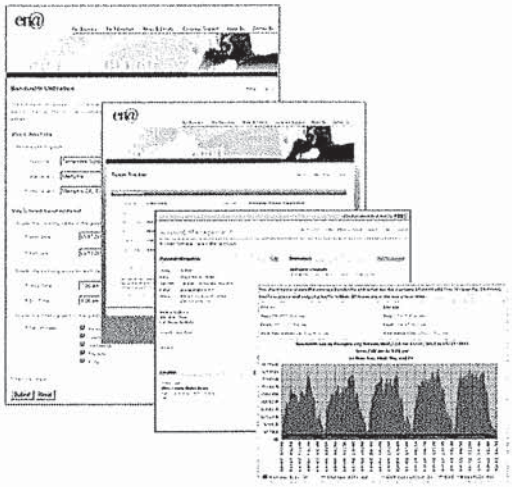
1. Create a customized, hassle-free, single-point-of-contact support system
2. Provide customers with toll-free, fax and online **communication options**
3. Furnish CTAC personnel with access to a range of **24x7x365 monitoring and management tools**
4. Empower knowledgeable CTAC customer support engineers with proven protocols
5. Allow **real-time access** for field service personnel from any location
6. **Offer customer technical personnel access to online tools** for monitoring, reported incidents and escalation activity
7. **Provide proactive monitoring** and customer notification of service interruptions

Key Support Principles

- **Dynamic and Proven Support System**
- **24x7x365 Web Tools and CTAC Access**
- **Experienced and Qualified Staff**
- **Advanced Technical Support**
- **First-Rate Processes and Procedures**
- **Network Performance Tracking**
- **Service Escalation Path**
- **Customer-Driven**

"ENA's CTAC provides extremely fast and accurate service."

Troy Jones, Network Technician
Weakley County Public Schools, Tennessee



Solution management, configuration management and security management tools allow the support team to stay in front of issues and to work towards swift problem resolution.

Equally as important, they generate the key data elements that are both necessary to meet reporting requirements and to create the feedback loop that allows for continuous improvement.

Our CTAC Director constantly improves customer service by monitoring key metrics such as wait-time on calls, number of contacts per resolution and time to resolution. ENA conducts transaction-based customer satisfaction inquiries as shown in the following illustration. Any question rated a three or below or includes comments is routed to our CTAC Director for follow-up with the customer to determine areas of improvement.

Education Networks of America

English (US)

Hello Dana,

Education Networks of America has asked HDI, an independent industry association, to randomly select closed incidents to better monitor customer satisfaction levels.

Incident #: 120830-121937
Incident Closed: 8/30/2012
Incident Description:

How satisfied are you with:	Very Dissatisfied				Very Satisfied	N/A
The courtesy of the analyst?	○	○	○	○	○	○
The technical skills/knowledge of the analyst?	○	○	○	○	○	○
The timeliness of the service provided?	○	○	○	○	○	○
The quality of the service provided?	○	○	○	○	○	○
The overall service experience?	○	○	○	○	○	

Did ENA complete and resolve all of your reported items?

○ Yes
○ No

If ENA dispatched a field representative or vender to your location was the on-site activity handled in a timely and professional manner?

○ Yes
○ No
○ N/A

Additional feedback

If you have further questions/issues, you may contact ENA directly at 888-612-2880.
☐ Please have the support center contact me.

Submit N/A

Figure 28: Transaction-based Customer Satisfaction Inquiry

ENA provides an extremely reliable service. Not only do we measure how quickly we react once an incident is identified, but we also measure our overall customer satisfaction outside of a trouble situation. Below you will find summary statistics regarding our average monthly CTAC call metrics. This information demonstrates the volume of incidents we handle on a monthly basis as well as how quickly we respond and resolve incidents when they occur.

ena CTAC

Customer Technical Assistance Center

2011 Monthly Average Summary Statistics
Call Metrics

Number of Customers Served:

Over **5,200 end sites** that includes **555 school districts** serving over **2.5 million students, teachers and administrators** as well as **170 library systems** serving more than **3.6 million library patrons**.

Average Speed of Answer:

30 seconds

Percent of Customer Visible Outages Notified Proactively:

95.0%

First Contact Resolution:
Percentage of Calls Resolved Without Escalation

93.5%

Figure 29: Average CTAC Call Metrics

Service Incident Procedures

Problem Reporting and Access to Tickets

ENA provides easy-to-use, real-time access to our internal issue management system to all customers. Our issue management system is an online, always-accessible interface that provides immediate access to all open incident activities involving customer support. **This tool allows customer administrators to open new tickets, update existing tickets and view up-to-the-minute information about incidents that might be affecting their level of service and detailed information about what action ENA is taking to correct the problem.**

An example of our online Customer Support Ticket Tracker that provides customers with an updated view of ENA's Remedy issue management system detailing all incidents being worked to resolution is provided in the following illustration.

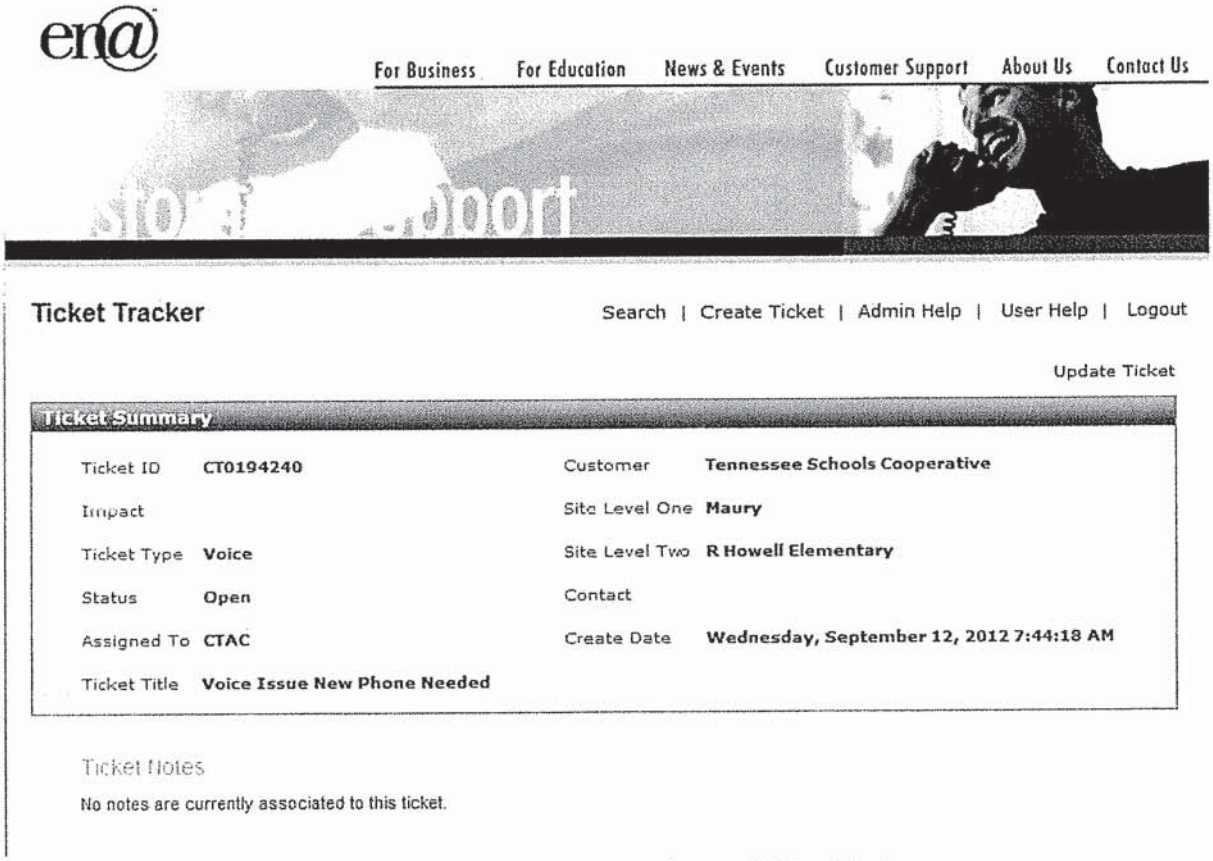
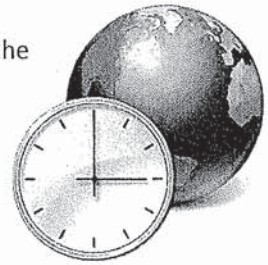


Figure 30: Web-based Customer Support Ticket Tracker

Timely Response, Follow-Through and Resolution



ENA will respond to all incidents within committed service levels or sooner upon occurrence. Response is defined as trouble isolation with communication back to the affected site and appropriate dispatch as required. Each occurrence is assigned a priority level commensurate with circumstances and impact to the customer, as outlined in the **Incident/Request Priority Level Descriptions Section** below.

For prolonged service interruptions, ENA will continue to keep the affected site up-to-date on the ongoing efforts to resolve the problem until full resolution is achieved.

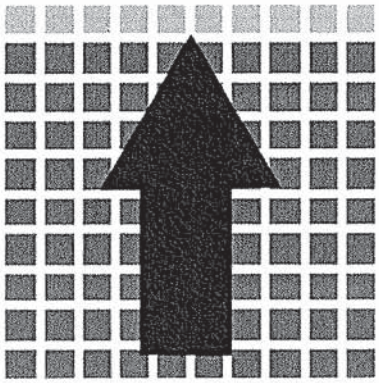
First Call Resolution

ENA has built its CTAC to be proactive and responsive on the first call. Over 90 percent of incidents and requests identified by the CTAC or the customer are resolved within the CTAC without escalation to higher support tiers.

When calls are received, ENA's approach to customer support involves an emphasis on first-call resolution. While many other help desk organizations staff their front line team with clerical support whose main function is that of referral, ENA's CTAC customer support engineers who receive end user calls have the training and experience to resolve a majority of the incidents themselves. Because of the experience and expertise of the CTAC, many reported incidents and requests are handled on the first call.

ENA's 24x7x365 CTAC provides comprehensive data, voice and video management support and acts as your single point of contact. You only need to contact one phone number—ENA's—to resolve any and all issues.

90% or More of Questions or Problems are Resolved by the CTAC at the First Point of Contact



Incident/Request Priority Level Descriptions

Each incident is addressed according to its Standard Priority Level, which is a function of the severity of impact to your operations and the urgency to restore service. The table below describes the Priority Levels.

ENA Standard Priority Levels with Description

Priority 1 Critical Incident

Definition: ENA service to customer is down, critical impact to customer business operation. ENA and customer will commit substantial resources around the clock to resolve the situation.

ENA defines a "Critical Incident" as a Customer-Impacting Outage where Internet or voice service is not available. In cases where incidents either start at the Priority 1 level or are escalated from Priority 2, ENA immediately places intense focus and resources on this incident to ensure quick and final resolution.

Priority 2 Major Incident

Definition: ENA service to customer is severely degraded, significant impact to customer business operation. ENA and customer will commit full-time resources to resolve the situation.

ENA defines a "Major Incident" as a single-cause Customer-Impacting Outage that affects more than one site, for which there is no immediate workaround. Incidents that start out in this priority level will automatically escalate to Priority 1 after one business day.

Priority 3 Minor Incident

Definition: Performance degraded, functionality impaired, most business operations not impacted.

ENA defines a "Minor Incident" as a Customer-Impacting Outage at a single remote site or other request that relates to current or potential minor network performance degradation. Incidents that start out in this priority level will automatically escalate to Priority 2 after two business days.

Priority 4 Request

Definition: Customer requests information or assistance regarding one or more ENA services.

ENA defines items in this category as customer requests for information or assistance related to our service where there is no Customer-Impacting Outage. In the case of ENA SmartVoice services and ENA Live services, Move/Add/Change/Delete actions are included within request handling. Requests, including orders, may be escalated based upon the urgency of the customer's need for the service change.

Figure 31: Priority Level Definitions

Escalation Procedures

ENA has a record of quickly and satisfactorily achieving problem resolution and has developed consistent procedures and contact processes. This is a result of our keen focus on customer service and the superior talent, experience and commitment of our team combined with our technical approach that has enabled us to earn the trust of our customers.

Escalation Matrix

The following chart outlines the ENA escalation protocol based on incident priority. This protocol ensures the right level of visibility and resource commitment for each incident so that service is restored in the shortest timeframe possible in the event of a service-impacting incident.

PRIORITY LEVEL	IMMEDIATE	15 Minutes	1 Hour	2 Hours	8 Hours	12 Hours
Priority 1 **CRITICAL ISSUE**	Managed Customer Technical Assistance Center (CTAC)	Senior Vice President (SVP) of Operations	SVP of Operations	President	-	-
Priority 2 **MAJOR ISSUE**	CTAC Director	CTAC Director	CTAC Director	SVP of Operations	CTAC Director & SVP of Operations; Escalate to Critical	-
Priority 3 **MINOR ISSUE**	Customer Support Engineers (CSE)	Customer Support Engineers (CSE)	CTAC Director	CTAC Director	CTAC Director	Escalated to Major; Notify SVP of Operations
Priority 4 **REQUEST**	Managed Customer Technical Assistance Center (CTAC)	All requests are reviewed by the CTAC team and are escalated based upon the urgency of the customer request. Move/Add/Change/Delete actions are included within request handling and are escalated upon the urgency of the customer's need for the service change.				

Figure 32: Incident Escalation Matrix

Escalation Process

We have developed an effective and efficient escalation system based on and customized for the needs of the end users of our managed services. Because we understand time is a precious and scarce commodity for our customers, we have eliminated the typical superfluous initial point of contact that exists in most service provider help desk structures.

Our CTAC customer support engineers possess and make effective use of a broad range of talent, experience and tools that are uncharacteristic of most initial point-of-contact teams. By staffing our CTAC with capable and empowered individuals, we provide a level of service tailored specifically to our customer's support needs. **The following graphic summarizes our incident-resolution methodology:**

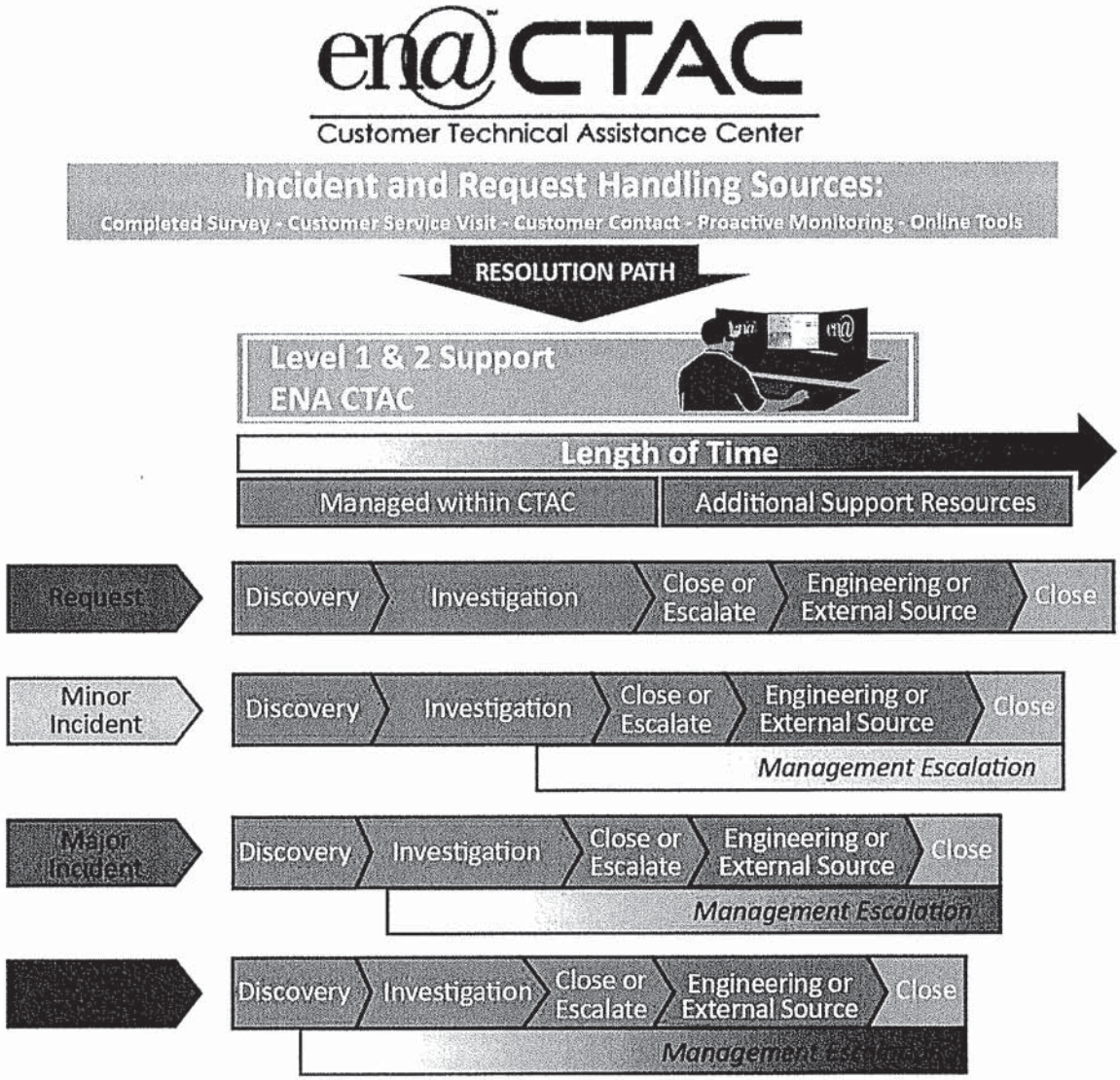


Figure 33: Customer Technical Assistance Center Incident-Resolution Methodology

ENA's Escalation Procedures are as Follows:

1. Upon receiving a request for assistance or otherwise identifying a problem, a CTAC customer support engineer will open a ticket within the CTAC system. In most cases the problem is resolved on the first call; however, in the case that the problem is beyond the capabilities of the CTAC team, they will escalate the incident to the Level 2 team. The CTAC customer support engineer responsible for the problem will assign a work-order ticket to an available and appropriate Level 2 engineer and inform the customer point of contact. Each attempt to notify

the customer will be recorded. The CTAC system will automatically notify the Account Service Manager.

2. Should the problem be beyond the scope of the Level 2 team capabilities or our external source vendor's initial levels of support, they will reassign the work order to the Level 3 team or escalate within the external source vendor. The CTAC system will automatically notify the Level 3 team and the Account Service Manager. The CTAC team will inform the requestor of the progress.

3. The Level 3 engineering or ENA carrier escalation team will follow the problem through to resolution.

Our Advanced CTAC System Makes Problem Escalation **Straightforward and Uncomplicated**

Management escalation within ENA occurs according to prescribed timetables driven by incident priority. We believe that our customers always have the right to intercede in the process if, for any reason, they believe an issue is not receiving adequate attention or appropriate remediation. Should this situation occur, the customers may contact their customer support engineer or the CTAC Manager and request to speak with anyone listed in the following ***Customer Service Escalation Path*** chart.

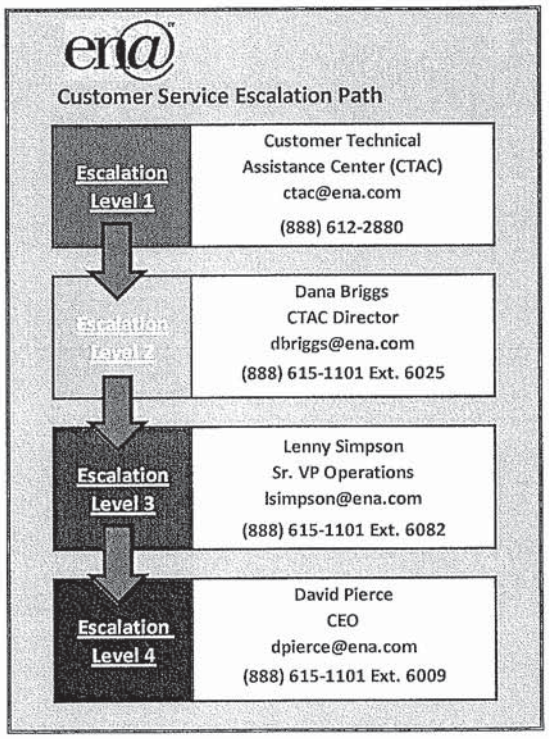


Figure 34: Customer Service Escalation Path

Field Operations Staff Support and Spare Parts

ENA's field service engineers and resources will be deployed locally throughout your geography, **assuring we can maintain network reliability and be available at any site within the committed**

response times. This will ensure the highest levels of reliability for our customers. Our field service engineers maintain ENA-owned equipment and carry necessary spare parts to fix problems during a service call, further reducing the time to repair any service interruptions.

ENA's spare-parts policy for ENA-provided equipment is to keep, at minimum, five percent of the total number of deployed network devices and associated modules available to ENA personnel at all times, to be used to repair or replace equipment in the field.

Service Monitoring

24x7x365 Proactive Monitoring

Ninety-five percent of the time or better, ENA contacts our customers in advance of their call in the event of a service interruption. We are able to achieve this level of advance notification because of proactive trouble detection by our network monitoring system. Our sophisticated and fault-resilient network monitoring tools monitor all network devices, circuits and related managed services on a 24x7x365 basis. These tools do far more than inform us when a device is up or down. They measure and report interface and circuit errors, latency, ping loss over time and many other factors which can affect an end user's overall network experience.

Key Performance Indicator

95% of customers are notified of an outage even before they are aware it exists!

Of the incidents not resolved based on proactive monitoring, many are resolved by our CTAC during the first call. This capability coupled with multiple communication methods (e-mail, phone and fax) for reporting troubles enables us to meet and exceed our customers' expectations for network monitoring and support.

Network Monitoring and Notification of Critical Events, Outages and Advisories

ENA's data, voice and video solutions are fully managed, Priority 1 E-Rate eligible services, and 24x7x365 monitoring of all core elements is included as an integral part of that managed service. All components of our solutions are continually monitored for availability, functionality and health.

Our CTAC and on-call engineering teams are immediately notified of any incident that arises with our ENA network, voice and video platforms. Additionally, ENA will monitor each end site location for network availability. Our systems automatically notify ENA personnel of any end site interruption, and end sites that utilize ENA's services are clearly labeled within our notification and monitoring systems as being connectivity sites and are immediately given high-priority status.

ENA notifies customers directly of any end site or service aggregation location outage or other problem visible through ENA monitoring that might affect the end user experience. We notify by both e-mail and phone, as appropriate. **Beyond monitoring the networks we manage on behalf of our customers, ENA also participates in a number of organizations that allow us to monitor the overall health of the global**