

services, and portability and interoperability should be achieved through marketplace incentives rather than regulatory fiat.⁴³

VI. DEVELOPMENT OF A DIGITAL "CABLE READY" STANDARD.

Time Warner believes the best way for the Commission to foster portability and interoperability of navigation devices, without unduly stifling innovation or compromising signal security or copyrights, would be to encourage the development of a basic digital navigation device architecture that maximizes the adaptability of such devices and which allows consumers to fully realize the functionality of the device and their MVPD services. The Commission and the industry can cooperatively develop specifications for "cable ready" digital navigation devices, much as has been accomplished for analog equipment, which contains a minimum degree of hardware dependency and which allows applications to be downloaded over the MVPD

⁴³ There are natural incentives within the industry to develop a common basic architecture which promotes the development of competitive availability of digital navigation devices, as evidenced by the many private sector initiatives which have already taken place. Recent examples of interindustry cooperation in the development of specifications that will facilitate interoperability of cable modems and of a core digital encryption methodology are good indicators that the affected industry players are able to accommodate their differences and work for the common good without the need for government intervention. See, "MCNS Agreement Could Lead to Cheaper Modems in Early 1998," Multichannel News (March 24, 1997) at 77; "Ops, Vendors Close in on Encryption Standard," Multichannel News (March 31, 1997) at 43. Time Warner and its affiliates have been actively involved in the efforts of the C3AG to implement the equipment compatibility provisions contained in Section 624A of the Communications Act with respect to both analog and digital equipment; the NCTA/EIA Joint Engineering Committee Security Working Group to develop a National Renewable Security System; and the Copyright Protection Technical Working Group formed by the motion picture and consumer electronics industries to develop an effective system to prevent the unauthorized copying of copyrighted digital and analog material. The Commission's proper role is to ensure that these initiatives are allowed to come to fruition in a timely fashion.

network into the device for execution. Such specifications should be based on the following three prerequisite characteristics.

First, any commercially available digital navigation devices that are to be marketed as cable ready must accommodate the separation of network security functions from navigation functions. Any portions of the equipment used for addressability or descrambling, including any security processor, decoder, network interface module, interdiction device or other component used for conditional access must be able to be structurally separated from the competitively offered video navigation device.⁴⁴ Any MVPD should have the option of offering any security and addressability components via a separate device which remains in the exclusive control of the MVPD, and which could plug into the competitively offered navigation device. All other functional components could thereby be supported within the competitively provided navigation device of the subscriber's choice. Time Warner considers the NRSS B proposal, which separates conditional access functions and the decryption circuitry from the navigation and other functions of the underlying equipment, to be a good start, but recognizes that the affected industries must further work together in order to adapt the NRSS standard to the cable television

⁴⁴ Time Warner disagrees, however, with those commenters who advocate that commercially available navigation devices should be prohibited from containing any security technology. *See, e.g.*, Comments of Viacom Inc. at 14 ("The digital set-top boxes of tomorrow . . . will have no compromisable security system contained within the boxes that are sold commercially. The boxes will hold only non-security items and module interfaces."). It may be economically efficient, for example, for the core security circuitry to be embedded in the first generation of commercially available digital navigation devices, while conditional access is controlled through a replaceable card or module. If the core security technology were breached on a national basis, it could either be replaced or bypassed. As is the case with DBS, all MVPDs should have the flexibility to deploy a security scheme which relies, at least to some extent, on security embedded in the consumer's device. No MVPD, however, should be forced to use a security technique which requires the commercial availability of any security component.

environment and ensure that all network security functions are allowed to remain under the exclusive control of the MVPD.⁴⁵

Second, any cable ready digital navigation device must include an interface similar to that adopted for Digital Video Disks that ensures that encrypted digital programming is not delivered in an unencrypted form at the output of the device, which would allow the customer to make perfect unauthorized digital copies of copyrighted intellectual property using a simple home computer. Producers of intellectual property, including the motion picture, television, and recorded music production affiliates of Time Warner, must be assured that their intellectual property will not be compromised by any commercially available digital video navigation device. The NRSS B proposal, as it now stands, is insufficient in this regard because it allows a technically savvy subscriber to tap into an unencrypted digital signal and transport stream at the NRSS module connector. An end to end encryption scheme must be developed which can act as an interface between the decoder module and final display circuitry. The MVPD and consumer electronics industries must be encouraged to further work together, in consultation with the holders of intellectual property rights, to produce an acceptable level of protection in this regard.

⁴⁵ For example, the current NRSS standard extracts Entitlement Management Messages (“EMMs”) directly from the data transport stream. While this works well for homogenous transport systems such as MMDS and DBS, cable systems must support heterogenous services and usually carry EMMs and other control and management messages on an out-of-band channel because this allows a guaranteed way of delivering messages to the navigation device regardless of the type of channel (analog video, digital video or data) that the navigation device is currently tuned to. Thus, adaption of the NRSS standard for cable systems will require, at minimum, the addition of a two way communications link (*e.g.*, a QPSK transmitter and receiver) to the navigation device to accommodate out-of-band signaling.

Third, any cable ready digital navigation device should establish a common integrated platform that will allow network communications protocols and functional applications which complement traditional MVPD offerings to be downloaded and executed directly. Once network security components have been removed from the navigation device, what remains are a number of other functions which are necessary for these devices to interface properly with MVPD distribution systems and support the services offered by a particular MVPD such as tuning, demultiplexing, demodulation, decompression, and the ability to support impulse pay-per-view ordering and program delivery. Equally important is that the platform be flexible enough to support the "look and feel" of how services are presented to and accessed by the MVPD's customers, such as program guides and other on screen display support. In a competitive environment, the ability to differentiate one MVPD's product from another's, and win and keep customers, will depend in large part on the MVPD's ability to offer its products in an attractive fashion that both facilitates ease of use by the customer and creates a unique and positive identification with the MVPD. A transparent applications environment which can be accessed and addressed by the MVPD service provider must be part of every commercially available navigation device. The minimum architectural requirements for such a platform could easily be specified. Such standardization would allow a variety of functions to be integrated using a single microchip processor.

The benefits of such a common architecture are enormous. It would ensure that all navigation devices at least contain a minimum common degree of functionality. Such commonality would allow a number of functions to be integrated onto a single silicon chip, resulting in economies of scale that would be expected to quickly bring down the cost of

navigation equipment. Expanded features requiring additional hardware components, such as the ability to use more than one MVPD service simultaneously, or additional memory to support interactive services, could easily be included as optional features in premium navigation devices without sacrificing the common minimal functionality of all navigation devices.

A common architecture supporting a hardware transparent addressable applications environment must be flexible enough to support a multiplicity of applications, both present and future, obtained from a variety of sources. Furthermore, customers must have the ability to choose which functions and features offered by their navigation equipment, whether such equipment is a separate device or is built into a television set, home computer or other consumer electronics product, that they prefer to use in connection with their MVPD service and have the ability to customize their equipment configuration to reflect that choice. For example, a customer that desires to use the program guide offered by a particular service provider, whether that be the MVPD operator or otherwise, should be able to configure its navigation equipment to allow the guide of choice to be the default setting when the MVPD service is accessed. Customers should not be forced to reprogram their navigation devices each time they use their MVPD service in order to bypass a proprietary default guide that is embedded in that device. An open and flexible platform must provide maximum utility to the customers to enhance their enjoyment of MVPD services.

An open environment would be greatly facilitated through the use of a common executable programming language, such as HTML, compatible across different operating systems. Indeed, a standardized client-server based HTML engine integrated within all digital navigation devices would greatly enhance interoperability and portability of these devices, as

well as help to harmonize the world of the personal computer with the world of the television. HTML is the most universal applications language in that almost any operating system can be adapted to run applications using HTML. Use of this language could provide access to the Internet for families that otherwise can not afford a PC. Furthermore, consumers are already generally familiar with the user interface utilized by HTML, as it is the standard on the World Wide Web.

VII. INTEGRATION OF NAVIGATION AND SECURITY FUNCTIONS.

Several commenters have suggested that the Commission prohibit MVPDs from offering any type of integrated device that includes both security and non-security functions.⁴⁶ While Time Warner supports the ability to separate security functions from other navigation functions as an important component in achieving commercially available navigation devices, such a blanket prohibition is unwise and unnecessary. The large embedded base of analog set top boxes, as well as other integrated navigation/security devices, cannot be ignored. Similarly, the introduction of digital technologies should not be held up awaiting the advent of widespread commercial availability. Because certain key prerequisites to the commercial availability of digital navigation devices have not yet been accomplished — notably a national renewable security system compatible with broadband cable distribution — initial generations of hybrid analog/digital cable boxes will include both navigation and security options and will be available *only* to authorized subscribers from cable operators. Consumers should not be forced to shoulder the burden of having the substantial investment made by MVPDs in perfectly

⁴⁶ See Comments of CEMA at 17-18; Comments of CERC at 18 n. 12; Comments of Tandy Corporation at 13; Comments of Circuit City at 31-32.

serviceable equipment made obsolete by regulatory fiat. As long as consumers ultimately have the *option* to purchase or lease component devices, there is no reason they should not also have the option to obtain an integrated device from their MVPD.⁴⁷

Furthermore, product integration may be an economic way to ensure that the navigation device purchased by a consumer at retail does not become prematurely obsolete as the MVPD upgrades its network or provides new services. It may well be desirable to include additional memory or some other feature which can be added at little or no additional cost in a security module provided by the MVPD that will allow the navigation device to perform well in an upgraded network environment. Such an approach would help assure the “backwards compatibility” of both network components and commercially available video navigation devices.⁴⁸ Indeed, the IS-105 interface developed for analog equipment was specifically designed to allow the analog security module to support functions in addition to security. Such flexibility is necessary in the digital environment as well to allow the user interface to continue to evolve in response to new technologies and services.

The need for such a prohibition may ultimately prove to be more hypothetical than real. If a sufficiently robust and flexible hardware platform architecture is developed, it may well be

⁴⁷ Consumer electronics manufacturers themselves provide many forms of integrated products in response to consumer needs and desires. As long as consumers are made aware that they have a choice of whether to lease equipment from their MVPD or purchase component equipment from retail sources, the commercial availability requirement of Section 629 is satisfied. Time Warner would not oppose incorporating commercial availability information into its consumer equipment compatibility notices provided to its customers at the time of initial service, and annually thereafter, as required by Section 76.630 of the Commission’s rules, 47 C.F.R. § 76.630.

⁴⁸ See Comments of Circuit City at 22.

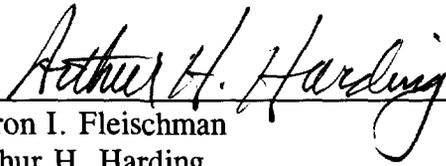
that such equipment upgrades may be easily and inexpensively accomplished with a simple upgrade kit available from either the MVPD or commercial sources. However, to the extent that new features and capabilities needed to optimize consumer interface with an MVPD's network are not available in retail products, or are slow to be incorporated, integration of this new capability into a module that may already contain most or all of the needed circuitry may well prove to be the most cost effective means of upgrading consumer hardware capabilities.

VIII. CONCLUSION.

Wherefore, Time Warner respectfully requests that the Commission implement Section 304 of the 1996 Act consistent with the principles stated above and in its initial comments.

Respectfully submitted,

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