Tracking Progress Toward ConnectED Goals & Managing E-Rate

Data Collection & Reporting Solution Proposal

Today's Agenda

- Introduction
- Collecting the Data
- Using the Data

Key Recommendations

- Make minor adjustments to four sections of the E-rate application process to collect the data needed to track progress toward ConnectED goals and manage E-Rate

- Create an API that allows the underlying data to be accessible to third-parties, including ESH

- Build a reporting application that sits on top of the data collected from the E-rate application process

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Introduction

Education SUPERHIGHWAY

Successful implementation of reform requires data for ongoing management

To Answer Key Questions:

- What is our progress towards ConnectED goals? Have districts met key criteria?
- Are we allocating E-rate spending to achieve maximum impact?
- Which pricing challenges should we try to address with policy changes?
- Have the policy actions already taken been effective in reducing prices?

Our market research shows that districts do not want to be burdened…

"Please don't make me give you the same information multiple times and only ask me for the information you will use."

Name	District
Thom Cosgrove	Maine Department of Education (formerly Old Town School District)
Mike Williams	Aberdeen School District, WA
Sandi Paul	Sayreville Public Schools, NJ
Gary Davis	Carroll County Public Schools, MD
Chris Hartley	Cumberland County School District, VA
Mike Murray	Oologah-Talala Public Schools, OK
Jean Tower	Public Schools of Northborough and Southborough, MA
Josiah Brown	Humboldt County School District, NV
Larry Dougher	Windsor Southeast Supervisory Union, VT
Phil Bickelhaupt	Wisconsin Rapids Public Schools, WI
Chris Hinze	Cascade School District, ID

…but districts recognize the importance of capturing data

A sampling of the support from E-rate commenters:

Boston 9/16/13 – Require Increased Transparency on How Funds are Used

"In exchange for an increase in the funding cap, and a limitation on the types of services (i.e. non-broadband service) that are eligible for support, the Commission should require an increase in transparency as to how funds are used. The City therefore agrees that USAC should create a website detailing how any recipient has used its funds, and it should require any entity that receives funding to document how it has used it."

NC DPI (11/6/13) – Collect the Data Needed to Establish a Baseline & Determine Funding

"We encourage the FCC to collect the data needed to understand the needs and establish a baseline and determine the amount of funding required in connecting all children and educators to the Internet via scalable bandwidth and high-density wireless in every classroom." (11/6/13)

Vermont 9/16/13 – Devise a Way to Continually Measure Broadband Capacities

"In terms of getting clear information on what is needed to continue to provide these kinds of services the FCC should devise a way to continually measure the broadband capacities being delivered to schools…Devise a measurement tool, tied to the 470 or 471 process that allows for records to be kept on all connectivity levels over time. Better yet, provide information about that cost as well and allow it to be searched publicly online…Consider making the Education Superhighway project [SchoolSpeedTest] be used as a national measurement center. Expand the relationship to Education Superhighway so it can serve this purpose and provide continuous data on connectivity levels."

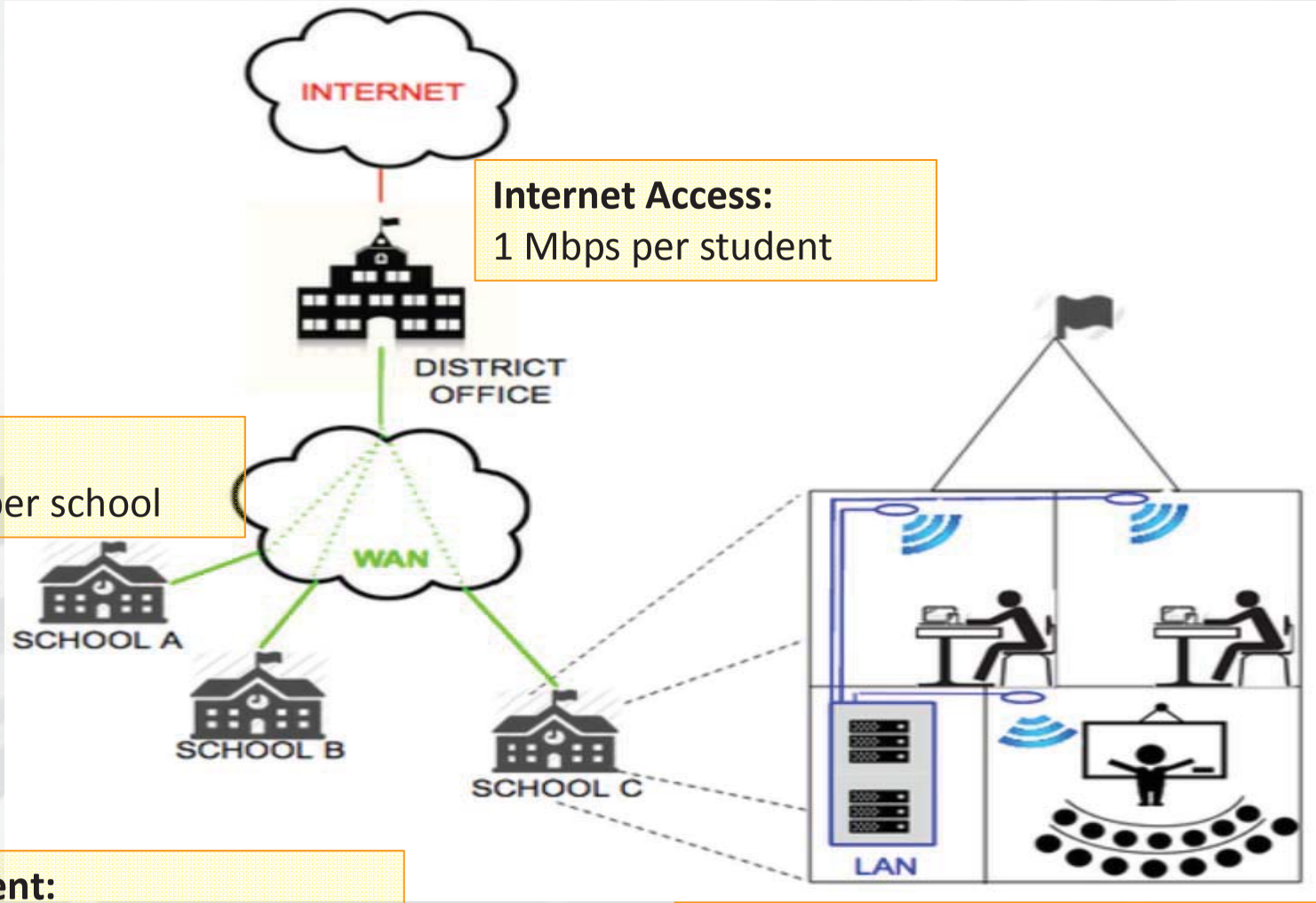
By using the existing E-rate process we get the needed data without creating a burden

- Districts can provide needed data as part of their existing workflows, so it will not be perceived as additional effort
- The scope of data captured will 100% match the E-rate applicant pool, improving quality of analysis

Collecting the Data

Education SUPERHIGHWAY

How to measure progress against ConnectED connectivity goals:



Internet Access:
1 Mbps per student

WAN:
1 Gbps per school

Equipment:
Any bottlenecks?

WiFi: 1.2 access points per classroom

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The suggested ConnectED metrics could be easily calculated or captured

Connectivity Goal	Target Metric	Data Required
Internet Access	1 Mbps / student	District Internet access capacity; # of students
WAN	1 Gbps / school	Speed of district WAN connection at each school
WiFi	1.2 access points / classroom	# of access points per classroom
Equipment	"No"	Self-Evaluation: Do you have any equipment bottlenecks in your network that are preventing you from achieving your digital learning goals? If yes, what?

Additional data & taxonomy changes are needed to assess the cost of services

USAC has previously indicated that these changes make sense based on the Item 21 Portal

Existing Fields	Values for Revised Taxonomy
Category	Data Network, Telephony, Mobile, and Other Services
Product	Legacy Copper (T1/T3), Cable, DSL, Lit Fiber, Leased Dark Fiber, Fixed Wireless

New Fields	Values / Description
Purpose	Internet Access, Transport Only - District WAN, Transport Only - to Internet, Bundled Internet Access and WAN, Bundled Transport Only – WAN and to Internet
Burstable Bandwidth	yes / no check box should be added. If checked, burstable max field should require a numerical value
Firewall	yes / no check box should be added

The following proposal is one of several ways to capture this information

- The following proposal outlines how to modify existing forms to capture the required information – it requires the fewest changes
- To reduce the burden on districts, an alternative approach that involves rationalizing the application forms could be taken
- For example, there are opportunities for a streamlined flow related to item 21, item 24, and form 471 block 4
- ESH would welcome an opportunity to collaboratively design enhancements, if appropriate

All of this data may be captured logically via the E-Rate application process

ConnectED Metrics may be captured here:

- **Form 471 Block 4:** includes a variety of site-specific information that could be logically expanded
- **Form 471 Block 2/3:** covers the general anticipated value / impact of services purchased

Cost of Services changes would be made here:

- **Form 471 Block 5:** categorizes the services to be purchased into broad buckets
- **Item 24 Block 5:** details information aimed at understanding what broadband services are being purchased

ConnectED Metrics: Form 471 Block 4

1. Name of School: ASHLAND RANCH ELEMENTARY
2. Entity Number: 225421 NCES: 04 03400 01986
   New School Construction: N Administrative Entity N
3. Urban or Rural: Urban
4. Total # of Students : 872 5. # of Students Eligible for NSLP: 181
6. %Students Eligible for NSLP (#5 / #4): 20.756%
7. Discount % from Discount Matrix: 50% 8. Weighted Product for Calculating Share Discount (#4 * #7): 436
9. Entity Sub-Type: 10. Alt. Disc. Mech: N

Suggested Changes:

- **Add 3 questions here:** current purchased WAN bandwidth per site, expected WAN bandwidth per site if funding request is approved, and avg # of access points per classroom
- **Adjust the print view to correspond to the electronic view:** this will allow it to scale for the extra questions and make it easier to read
- **Require that this information include all sites within the district.** Retain this information year-over-year, so only updates are needed in the future.

ConnectED Metrics: Form 471, Block 2

Block 2 & 3: Impact of Services Ordered fo	
7a Number of students or patrons to be served	
b Telephone service: Number of classrooms or rooms with phone service	
c Direct connections to the Internet: Number of drops	
d Number of classrooms or rooms with Internet access	
e Number of computers or other devices with Internet access	
f Number of dial-up Internet access and other connections of up to **200 kbps**	
g High-speed Internet access services: Number of buildings served at the following speeds (please use advertised download speed coming into building, not actual speed in classroom or work area):	At or greater than **200 kbps** and less than **1.5 mbps**
	At or greater than **1.5 mbps** and less than **3 mbps**
	At or greater than **3 mbps** and less than **10 mbps**
	At or greater than **10 mbps** and less than **25 mbps**
	At or greater than **25 mbps** and less than **50 mbps**
	At or greater than **50 mbps** and less than **100 mbps**

Suggested Changes:

- Remove 7a-f – they are out-dated and/or redundant
- Replace 7g with "Current connection speed from district WAN to Internet" & "Expected connection speed from district WAN to Internet if this application is approved"
- Add Equipment question here
- Make these required fields

Cost of Services: Form 471, Block 5

11 **Category of Service** (only ONE category should be checked)

PRIORITY 1	PRIORITY 2
☑ Telecommunications Service	☐ Internal Connections Other than Basic Maintenance
☐ Internet Access	☐ Basic Maintenance of Internal Connections

Suggested Changes for "Category" Field:

- **Priority 1 Values:** Data Network, Telephony, Mobile, Other Services
- **Priority 2 Values:** Internal Connections Other than Basic Maintenance, Basic Maintenance of Internal Connections

Cost of Services: Item 24, Block 5

to Item 21 but should be consistent with the description of services in the response to Item 21. Please ask your service provider if you need assistance.

Type of Connection	Number of lines included in this FRN	Download speed per line in Mbps

b If the Internet service is available to students or patrons in more than just a single location or office, please indicate:

1. If the access is provided by wired connections, approximately what percentage of the school classroom or public library rooms

Suggested Changes:

- **Type of Connection:** should be changed to a drop-down with the following values: Legacy Copper (i.e. T1/T3), Cable, DSL, Lit Fiber, Leased Dark Fiber, Fixed Wireless
- **Purpose:** a new drop-down field should be added after type of connection with these values: Internet Access, Transport Only – District WAN, Transport Only – To Internet, Bundled Internet Access & WAN, Bundled Transport Only – WAN and to Internet
- **Download speed per line in Mbps:** should be re-worded to "Download Speed per connection in Mbps"
- **Burstable:** yes / no check box should be added. If checked, burstable max field should require a numerical value, validated to be above the download speed per line.
- **Firewall Included:** yes / no check box should be added

Once the district completes the E-Rate application, they are done

Solution Highlights:

- The E-Rate application itself includes all manual data entry required for managing the E-Rate program and progress towards ConnectEd
- Districts are able to provide the information we need as part of existing workflows
- APIs would be made available to users of existing electronic systems e.g. from consultants, so long as they are also enhanced to collect this data
- The portal used to submit E-Rate applications is developed to include a new reporting component to deliver the vision for policy makers

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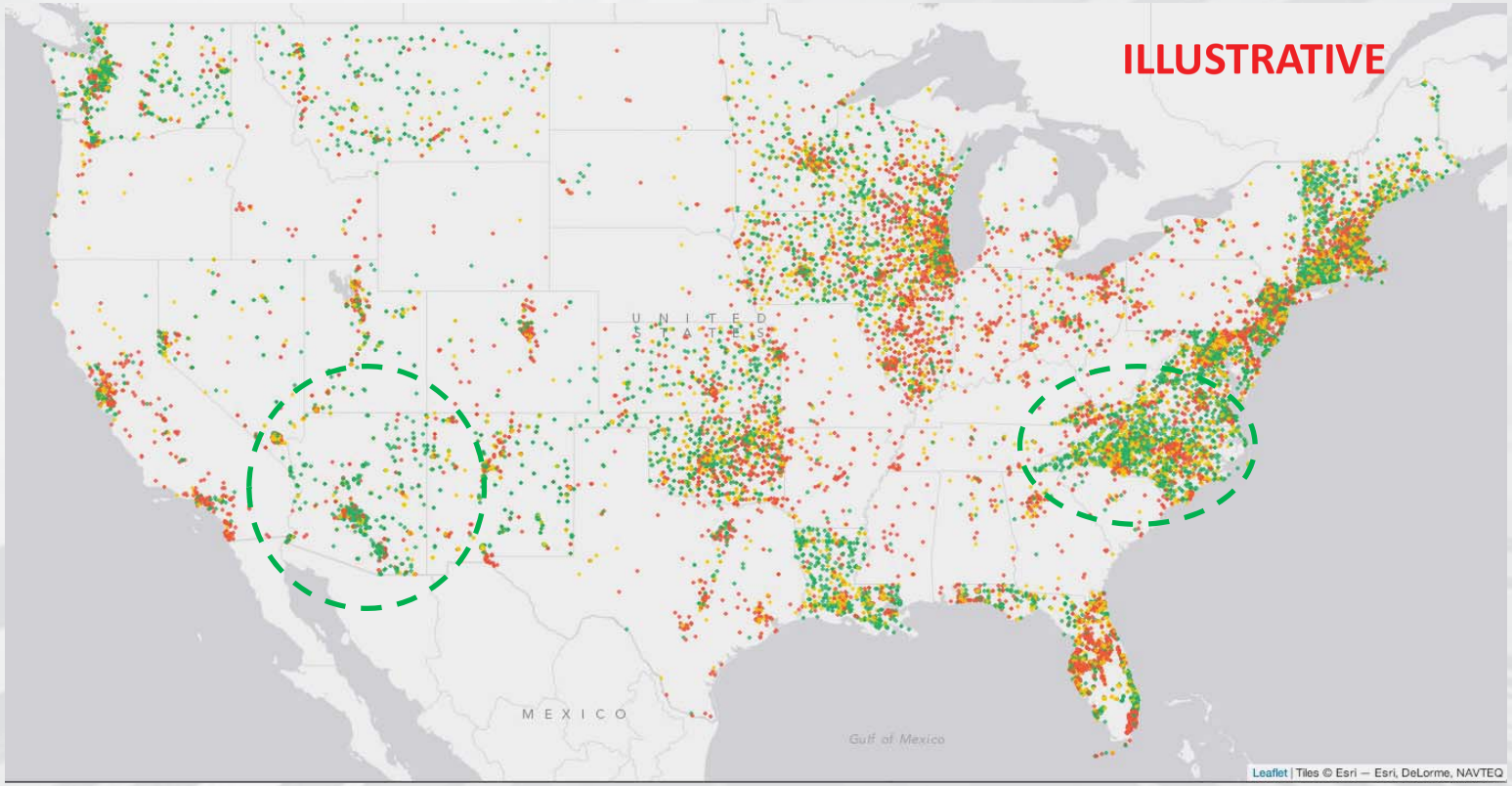
Using The Data

Education SUPERHIGHWAY

The goal of this section

To illustrate how the data collected here could be used to answer the key questions needed for managing the E-Rate program

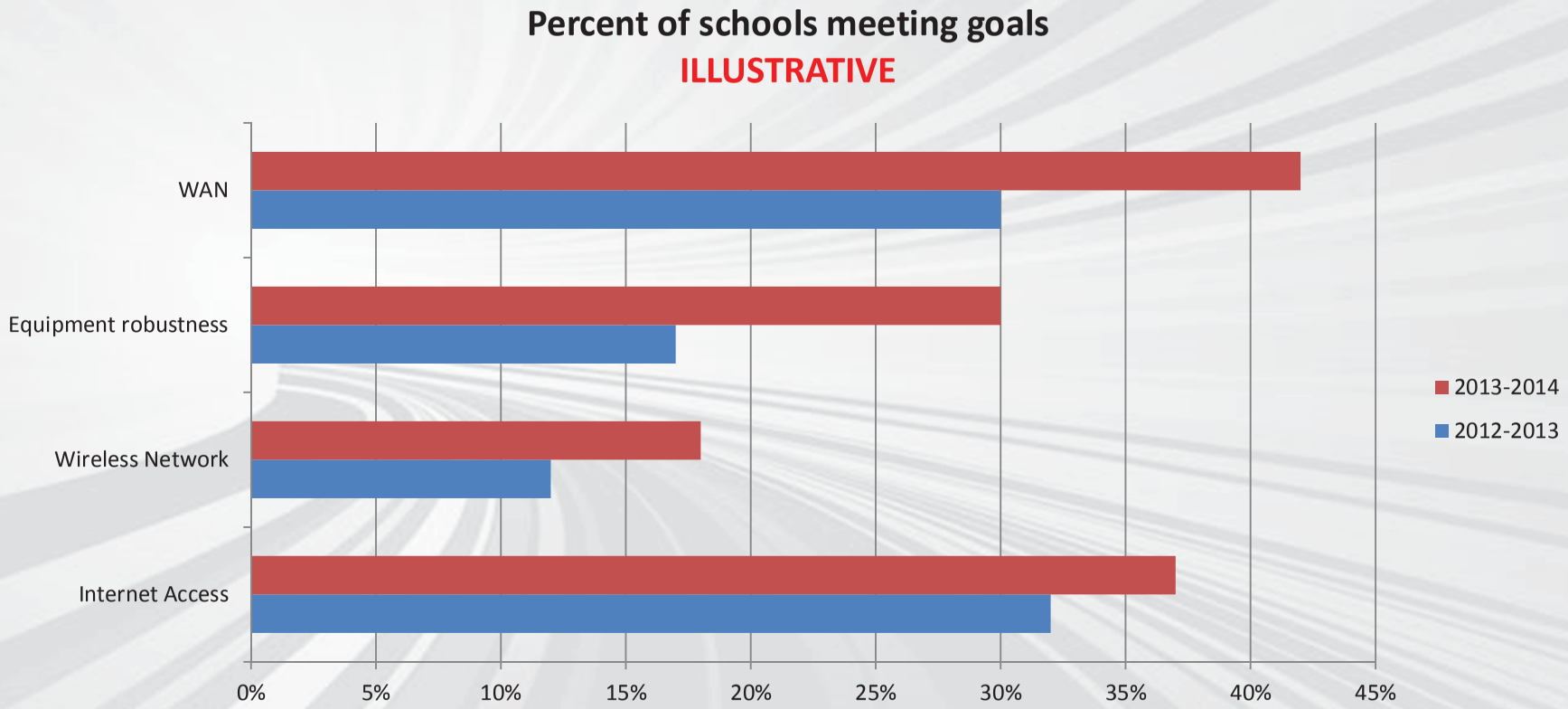
What is our progress towards ConnectED goals? Example:



What could the data say?

- Progress has been most significant and consistent in states that have a governor who has prioritized connectivity
- Districts in rural areas continue to have the greatest challenges

What is our progress towards ConnectED goals? Example:



What could the data say?

- Year over year progress across all measures
- Greatest gains in equipment robustness
- Only 37% meeting internet access goals for the students

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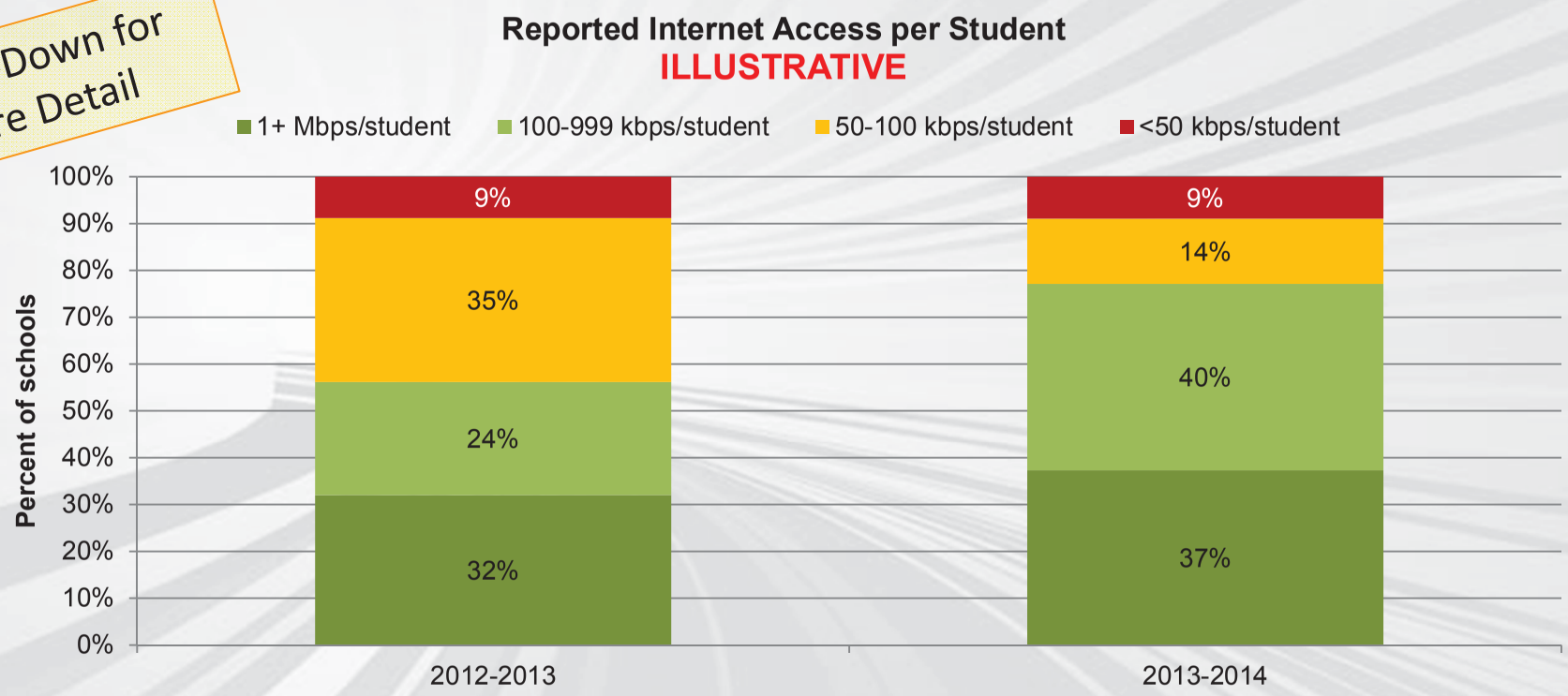
What is our progress towards ConnectED goals? Example:

Drill-Down for More Detail



What could the data say?

- 37% of schools are meeting the target and another 40% of schools are close to the target, representing significant progress over last year
- Little progress for the 9% of schools furthest behind

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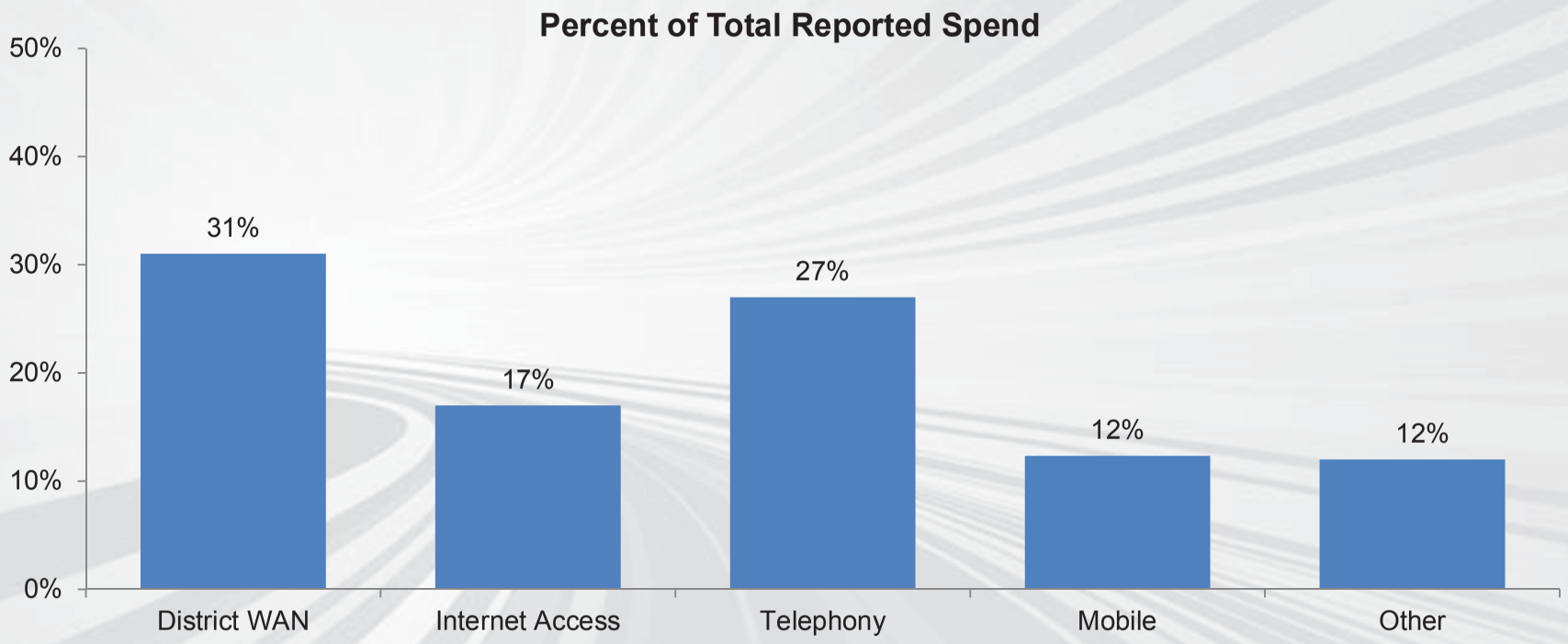
Are we allocating E-Rate spending to achieve maximum impact? Example:



What could the data say?

– No, 51% of funding is going toward areas that do not support ConnectED connectivity objectives

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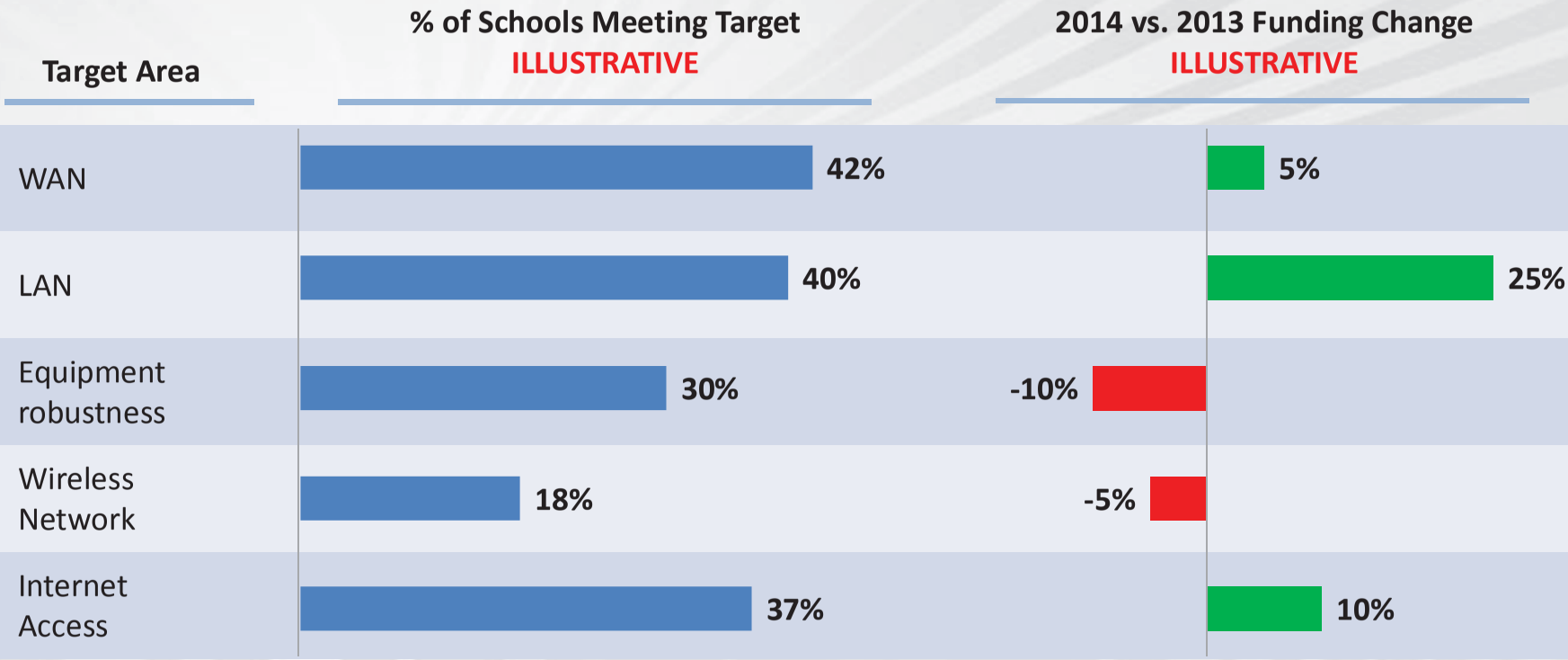

What could the data say?

– No, although schools are furthest behind in meeting Wireless Network targets, funding for Wireless Networks has decreased 5% in past year

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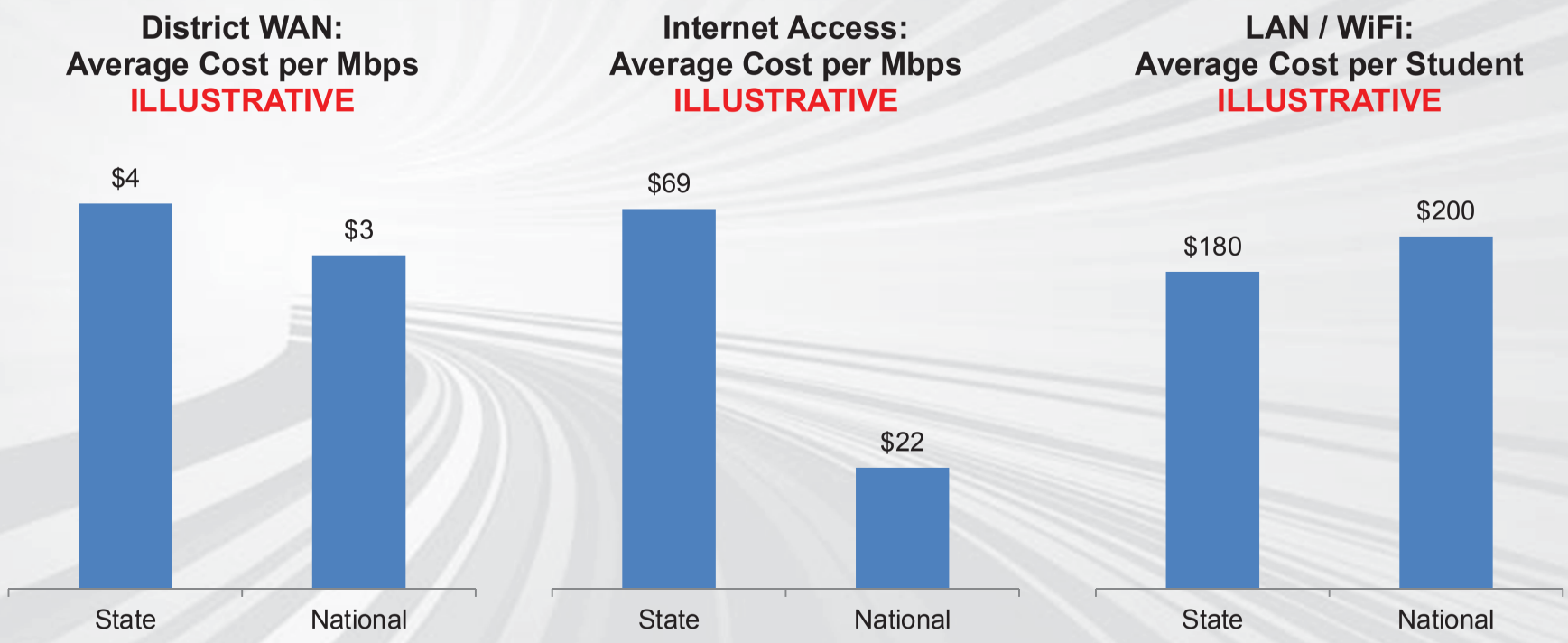
What pricing challenges should I try to address with policy changes? Example:



What could the data say?

– In my state, the prices for Internet Access are furthest from the national average, suggesting this area might be the most appropriate focus.

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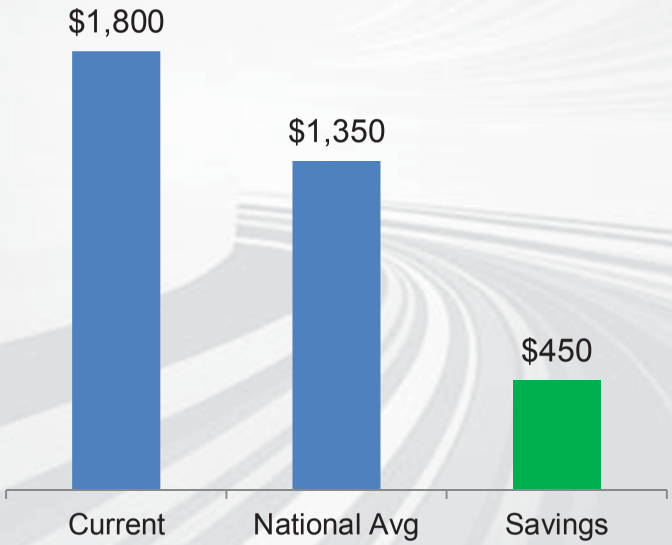
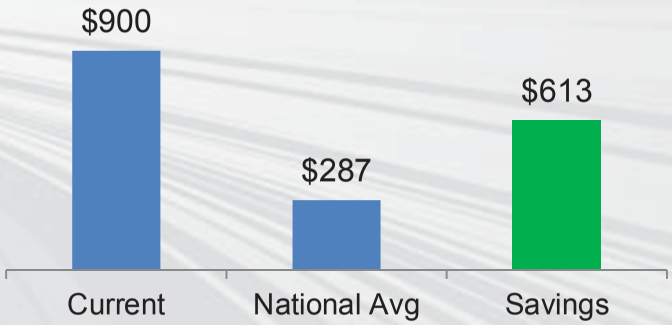
What pricing challenges should I try to address with policy changes? Example:

District WAN:
Total Annual Cost ($'000)
ILLUSTRATIVE



Internet Access:
Total Annual Cost ($'000)
ILLUSTRATIVE



What could the data say?

– When accounting for the absolute costs of network components, Internet Access also offers the greatest cost savings.

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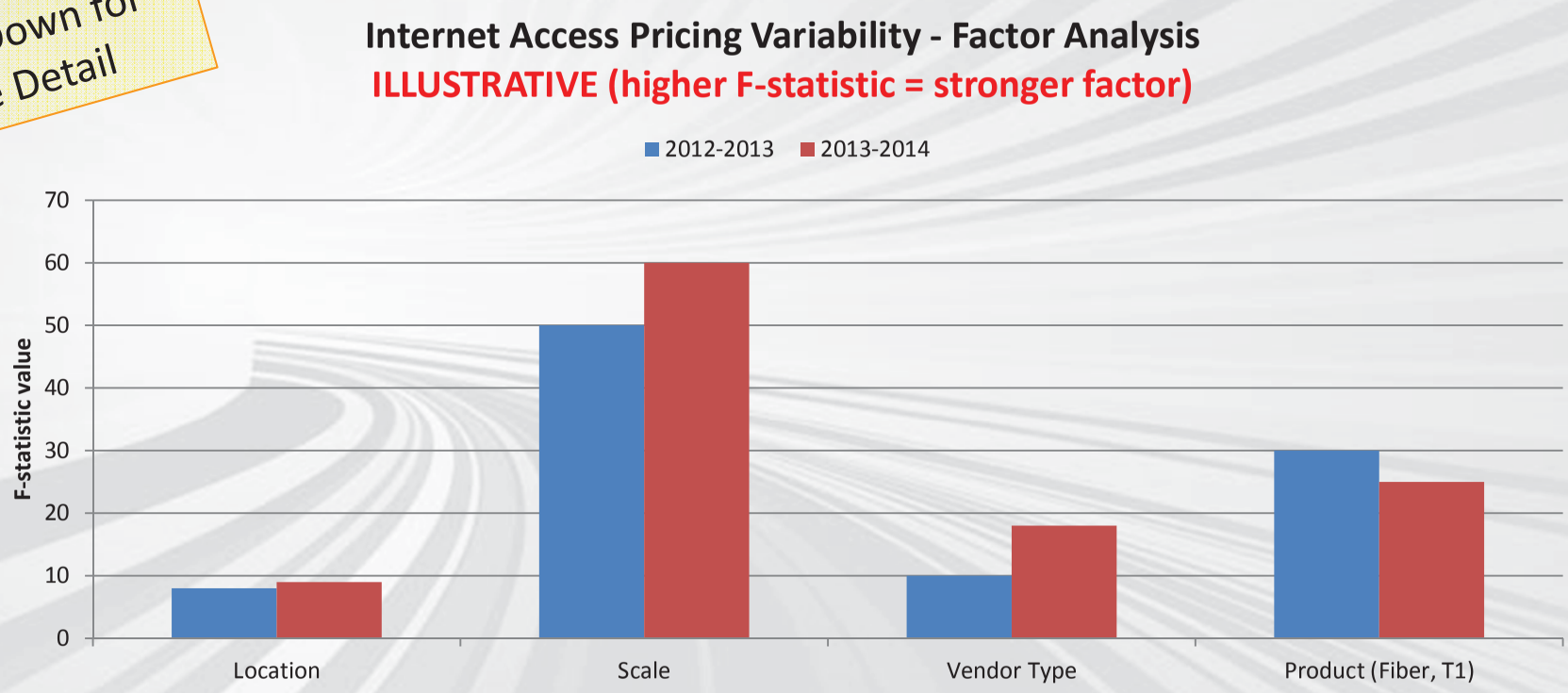
What pricing challenges should I try to address with policy changes? Example:

Drill-Down for More Detail



What could the data say?

– In my state, the drivers of Internet Pricing pricing appear to be scale of purchases. As a result, policy efforts focused on strategies to incentivize bulk purchases might have the most impact.

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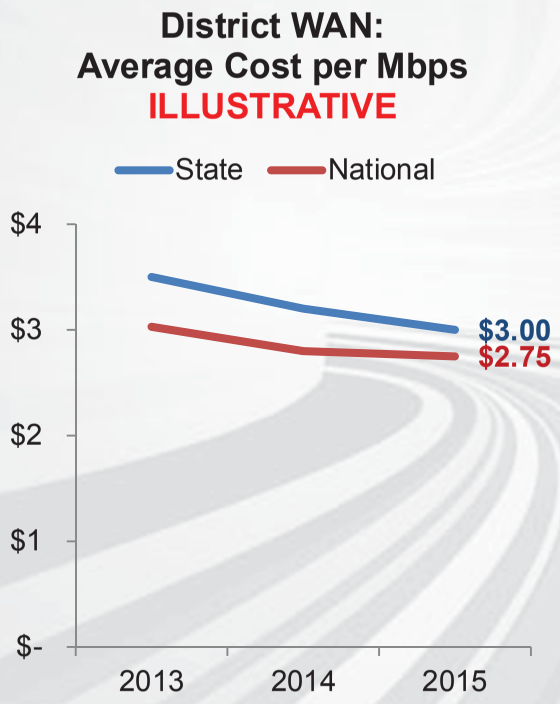
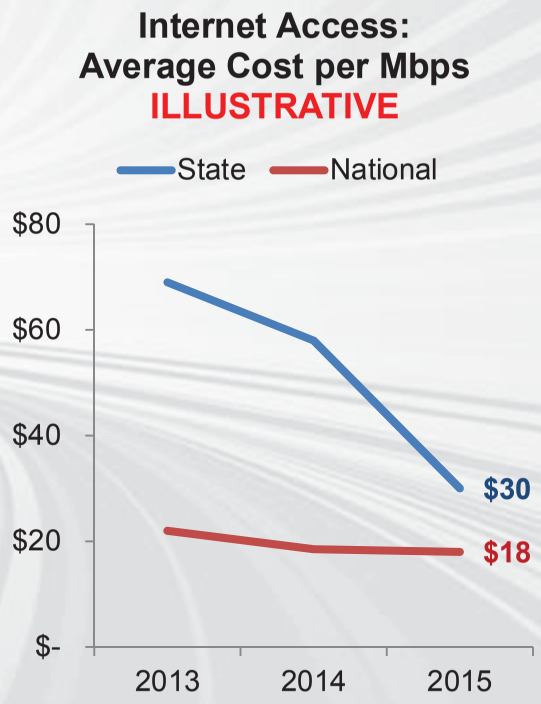
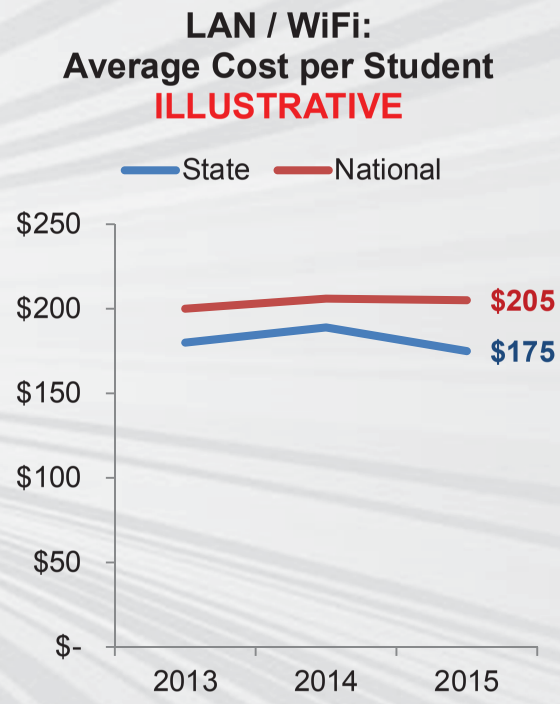
Are my policy actions for reducing prices effective? Example:







What could the data say?

- Yes, the prices for internet access have significantly dropped over the last two years since the roll out of policy initiatives and are now approaching the national average

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