

# District Technology Report

*“Empowering Students for Success”*



April 24, 2013

# **Educational Technology Vision**

*...to improve and extend teaching and learning through the meaningful use of technology in our schools.*

*Through the support and training of our staff, students will be technologically empowered, and life-long learners will be prepared to enter the workforce.*

# Introduction to District Technology

Technology & Information Services (TIS):

- Over 13,000 Computers
- Ratio of 1 Technician to 1000 Computers
- 900+ Switches
- 1500+ Wireless Access Points
- 100's IP Connected Devices
- 100's of Applications Both Local and Hosted

District Technology Plan: Board Approved June 27, 2012

# DISTRICT TECHNOLOGY HIERARCHY

*Provisioning of  
Services and Systems*

**Users**

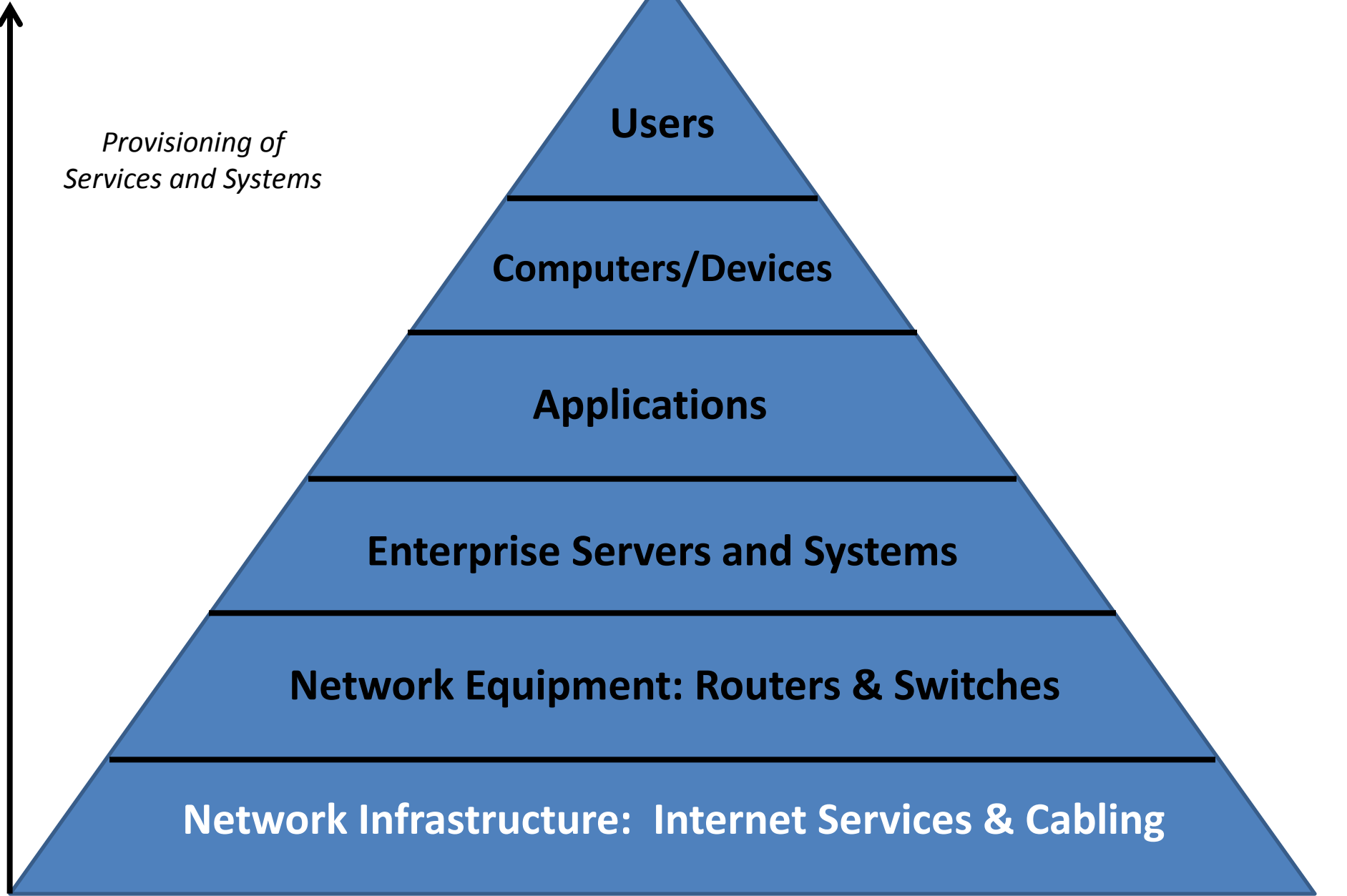
**Computers/Devices**

**Applications**

**Enterprise Servers and Systems**

**Network Equipment: Routers & Switches**

**Network Infrastructure: Internet Services & Cabling**

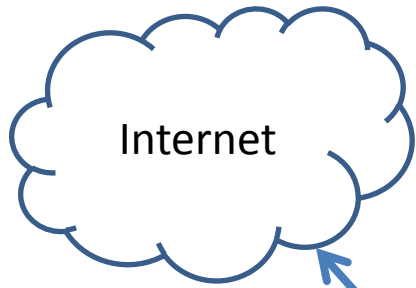


# Network Infrastructure: Internet Services & Cabling

- Cox Internet Service Provider (ISP)
  - eRate discount of 49 percent
    - Services bid every 3 years in December/January
  - CTF discount of 45-50 percent
- Services Running over District Network:
  - Computers/mobile devices (all sites)
  - VoIP phones (22 sites)
  - IP video surveillance cameras (7 sites)
  - IP projectors (1 site)

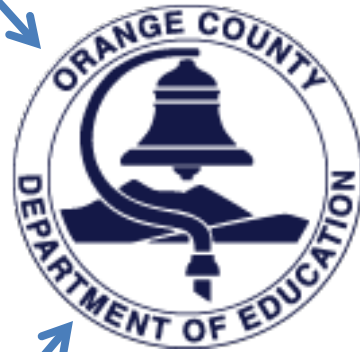
# Network Infrastructure: Internet Services & Cabling

- Connection Speed
  - high schools: 500Mbps
  - middle schools: 300-500Mbps
  - elementary schools: 300-500Mbps
- Internet/Bandwidth Monitoring:
  - Monitor using netflow bandwidth monitoring tools
  - Monitor monthly usage
  - Used to indentify bandwidth irregularities and spikes



Internet

CENIC

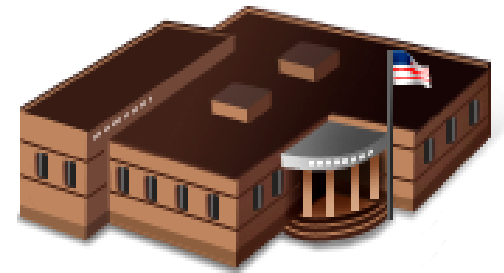


1 Gig

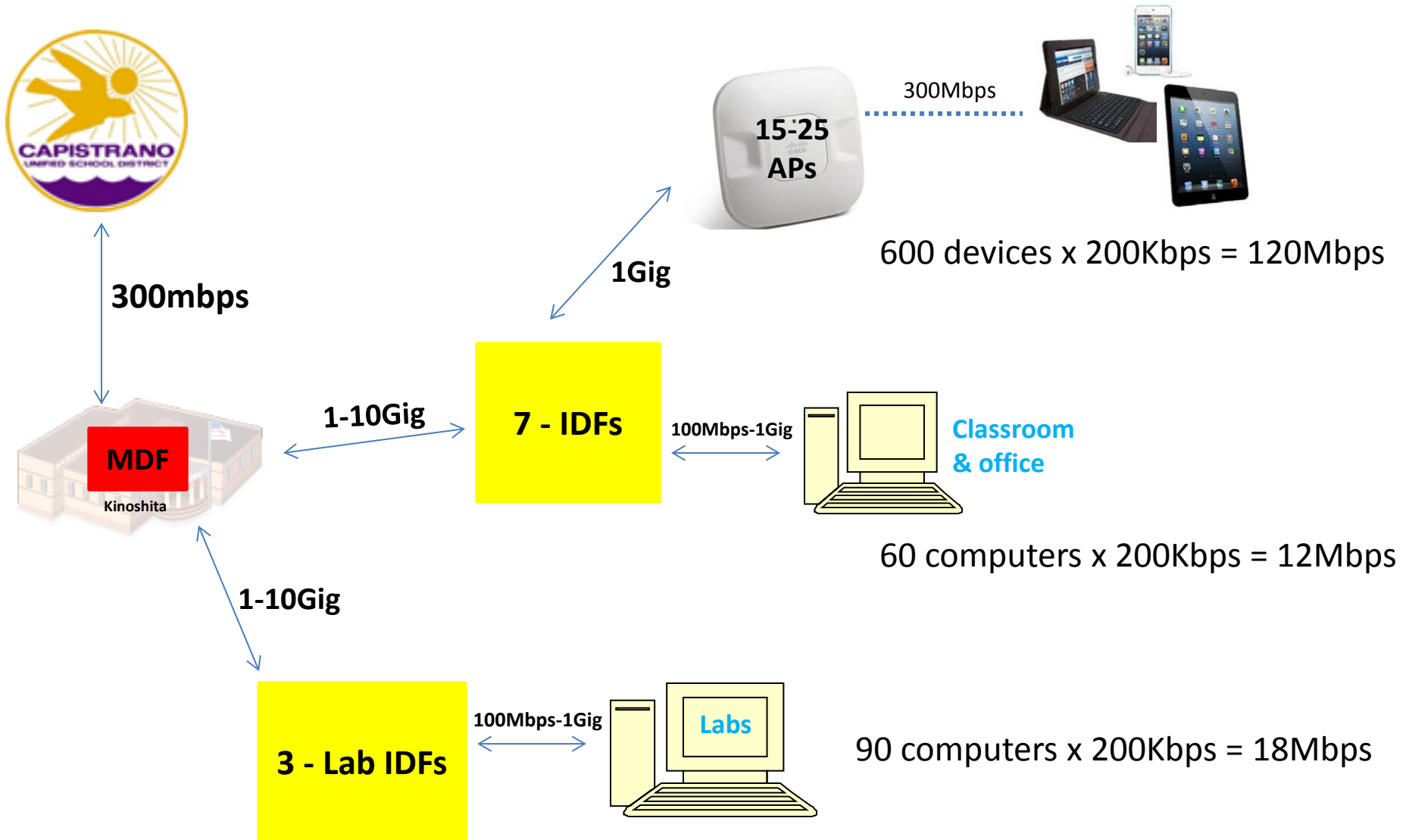


300-500 Mbps/school site

school site



# Kinoshita Elementary School – Example of Connectivity






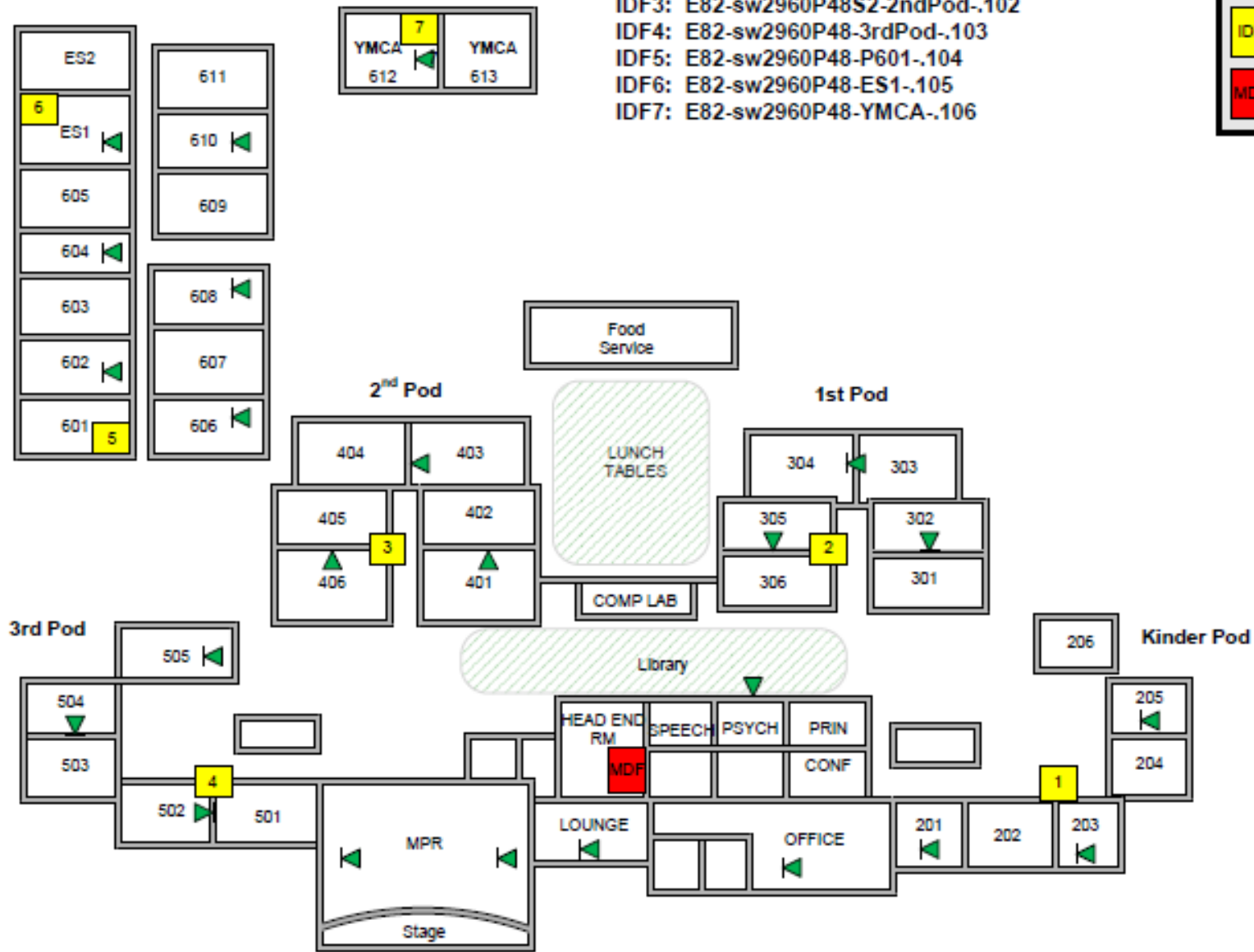
**Estimated Total = 150Mbps**



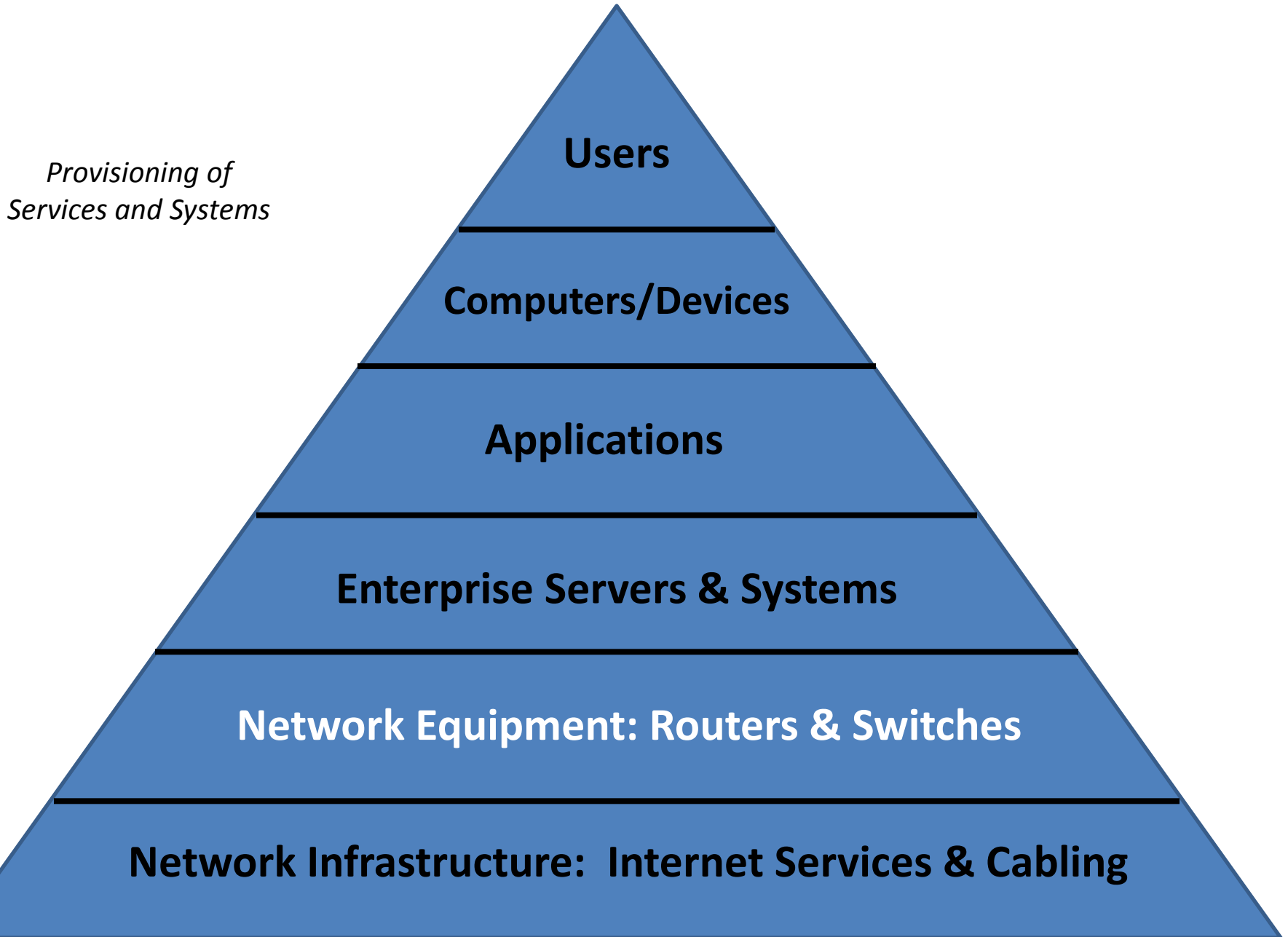
- MDF: E82-SW4510E-L3-MDF-.1
- IDF1: E82-sw2960P48S2-KinderPod-.100
- IDF2: E82-sw2960P48-1stPod-.101
- IDF3: E82-sw2960P48S2-2ndPod-.102
- IDF4: E82-sw2960P48-3rdPod-.103
- IDF5: E82-sw2960P48-P601-.104
- IDF6: E82-sw2960P48-ES1-.105
- IDF7: E82-sw2960P48-YMCA-.106

**LEGEND**

-  ACCESS POINTS
-  IDF
-  MDF



# DISTRICT TECHNOLOGY HIERARCHY



# Routers and Switches

## 2010-2012 - Network Upgrades

- Upgraded 56 MDFs
- Upgraded 70 IDF's (all labs)
- Upgraded Access Points / Wireless @ 20 sites
- Upgraded Data Center

<b>Funding source and school sites upgraded</b>	
<b>Title 1 &amp; eRate Funding:</b>	<b>General Fund:</b>
San Juan Elementary School	Chaparral Elementary School
Las Palmas Elementary School	Oso Elementary School
Viejo Elementary School	Ladera Ranch Elementary School
R.H. Dana Elementary School	Palisades Elementary School
Kinoshita Elementary School	Ladera Ranch Middle School
Del Obispo Elementary School	Tesoro High School
Marblehead Elementary School	San Clemente High School
Hidden Hills Elementary School	Dana Hills High School
Marco Forester Middle School	Capistrano Valley High School
Junipero Serra High School	Aliso Niguel High School

# Routers and Switches

- Cisco Backbone
  - Switches
    - Scalable with up to 10 Gig capacity & PoE
    - Future-proofed with up to 10 year lifespan or longer
  - Wireless Access Points
    - Built for 2 to 3 devices/user
    - Dual-band
  - All centrally managed with one management console

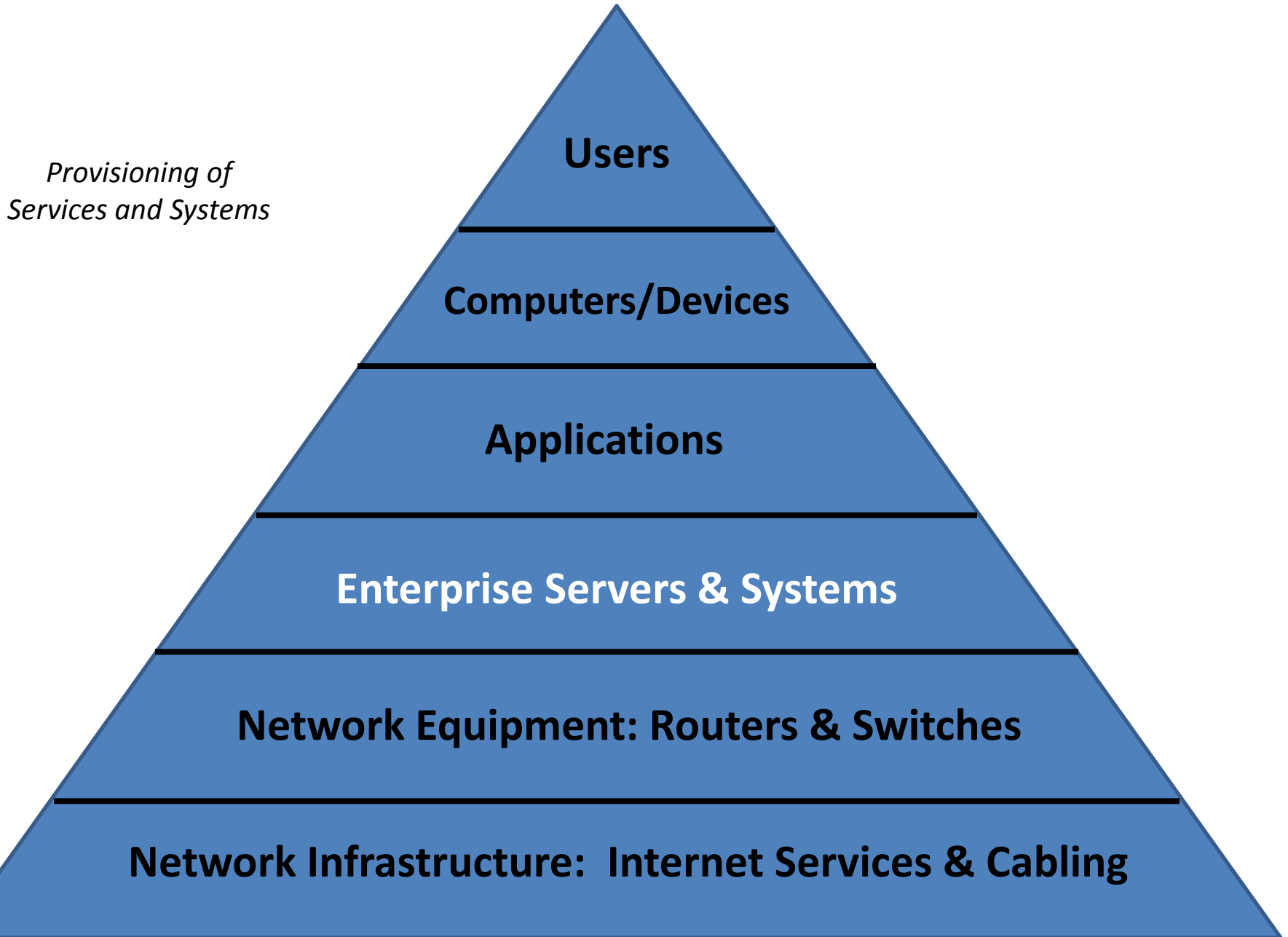
# Routers and Switches

## Proposed Network Upgrade (2013-2014)

- 36 Campuses remain to be upgraded
  - Current State:
    - Switches - are only 10/100Mbps non-PoE and over 10 years old on most campuses
    - Access Points – limited coverage and not enough density; can only provide 10-20Mbps connection
  - Proposed Recommendation:
    - 279 - replace with refurbished 1Gig PoE switches
    - 703 - replace and add access points for campus-wide coverage with 300-450Mbps connection capacity



# DISTRICT TECHNOLOGY HIERARCHY



# Enterprise Servers and Solutions

- CUSD Data Center
  - Storage Area Network (SAN) with 72TB storage
  - Virtualize over 100 servers with room to consolidate more applications
  - Storage for all users
  - Evaluating Virtualization of the Desktop

# DISTRICT TECHNOLOGY HIERARCHY

*Provisioning of  
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**Users**

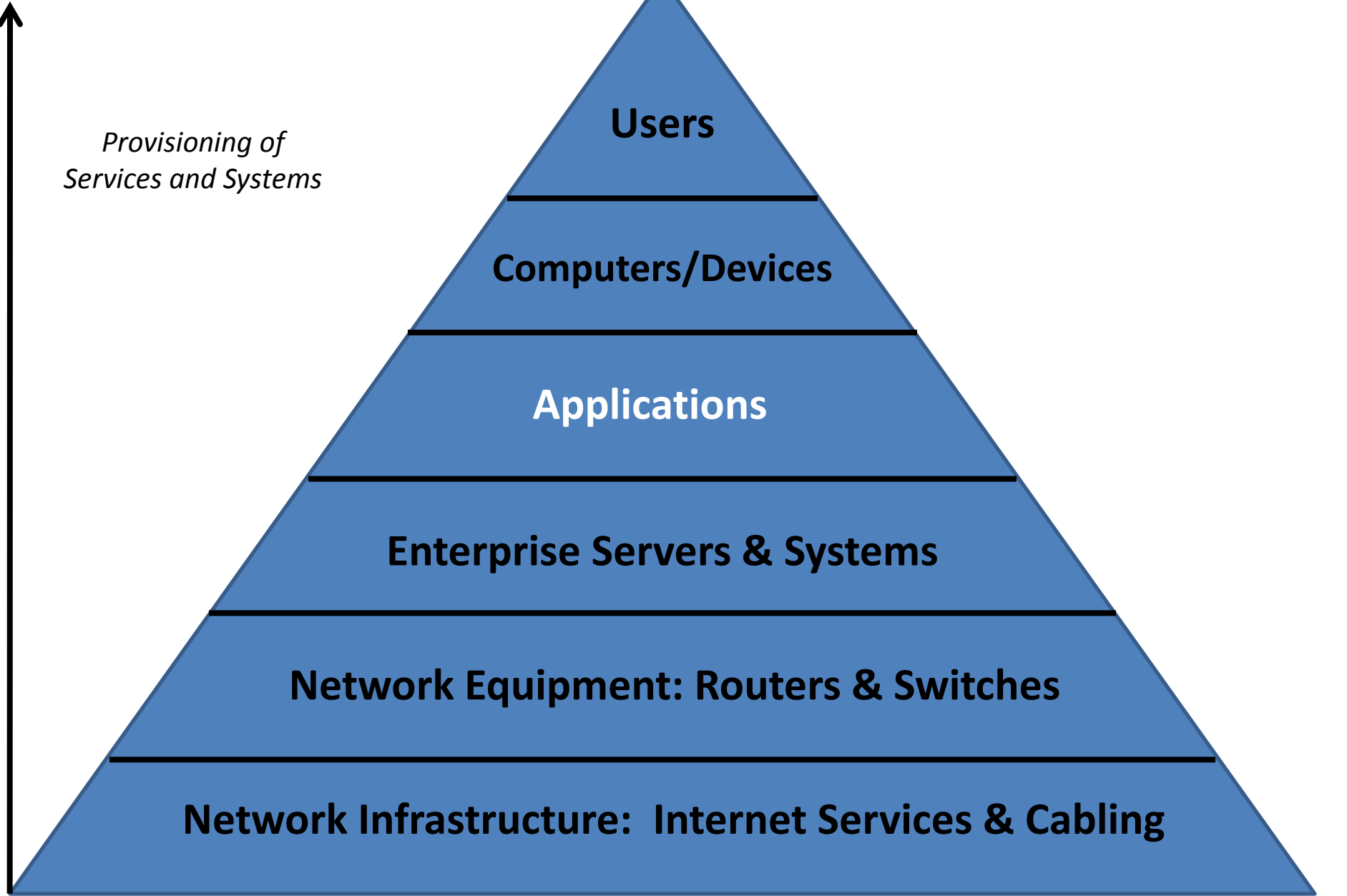
**Computers/Devices**

**Applications**

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# Applications

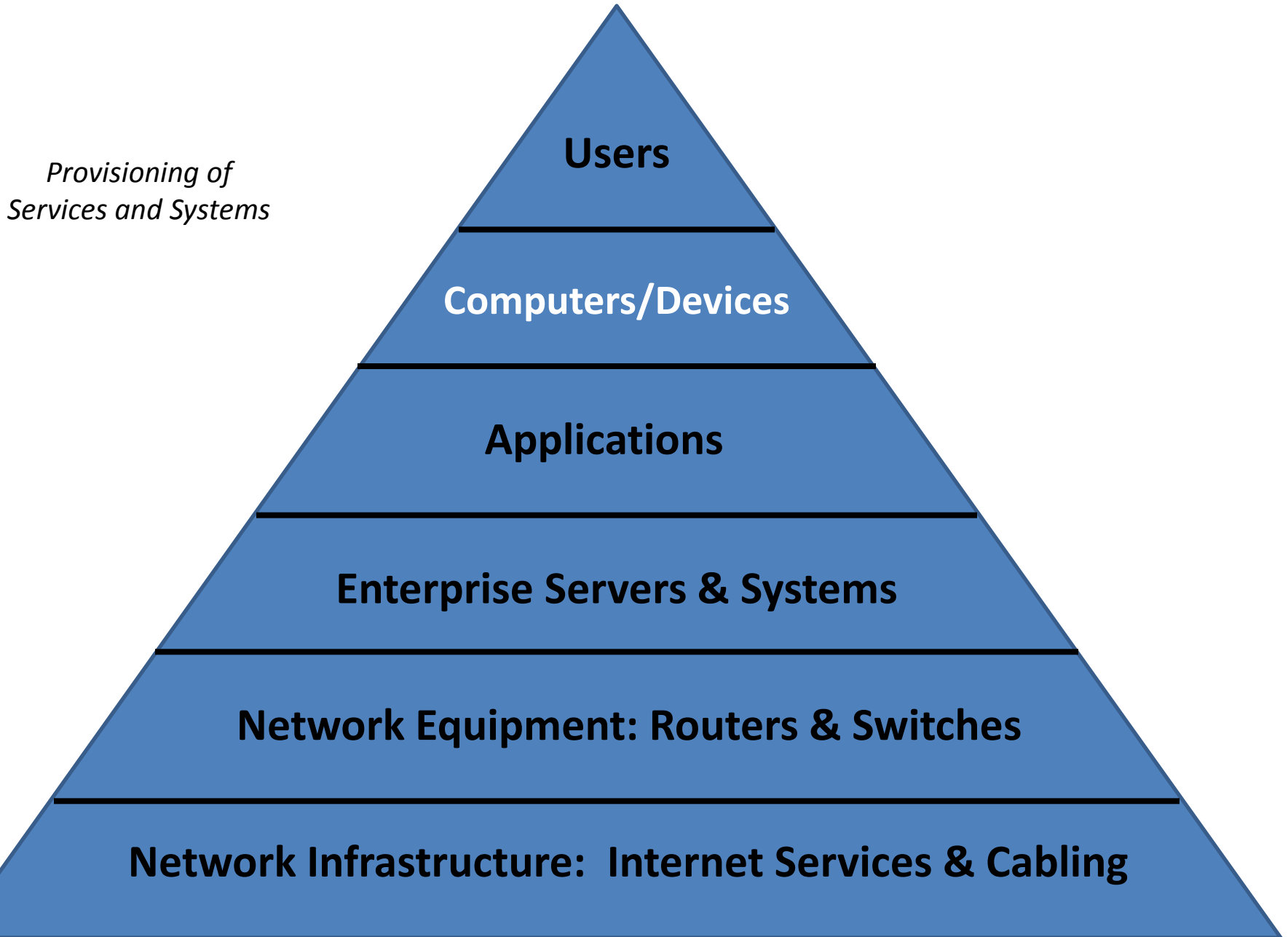
- Textbook Resources (enVision, Scott Foresman, etc)
- Electronic Learning Programs (Fraction Nation, Renaissance Place, FasttMath, ST Math, UltraKey, etc)
- Aeries Student/Parent/Teacher Portal
- QSS Business/HR System
- Discovery Streaming
- SchoolLoop Plus
- Edmodo
- iSafe Curriculum
- My Big Campus (youtube)

# Applications

## CCSS & SBAC

- Smarter Balance Assessment Consortium
  - CDE Selected Trial Sites: VDMMS and LNES
- SBAC Pilot Test – Phase II – in progress

# DISTRICT TECHNOLOGY HIERARCHY



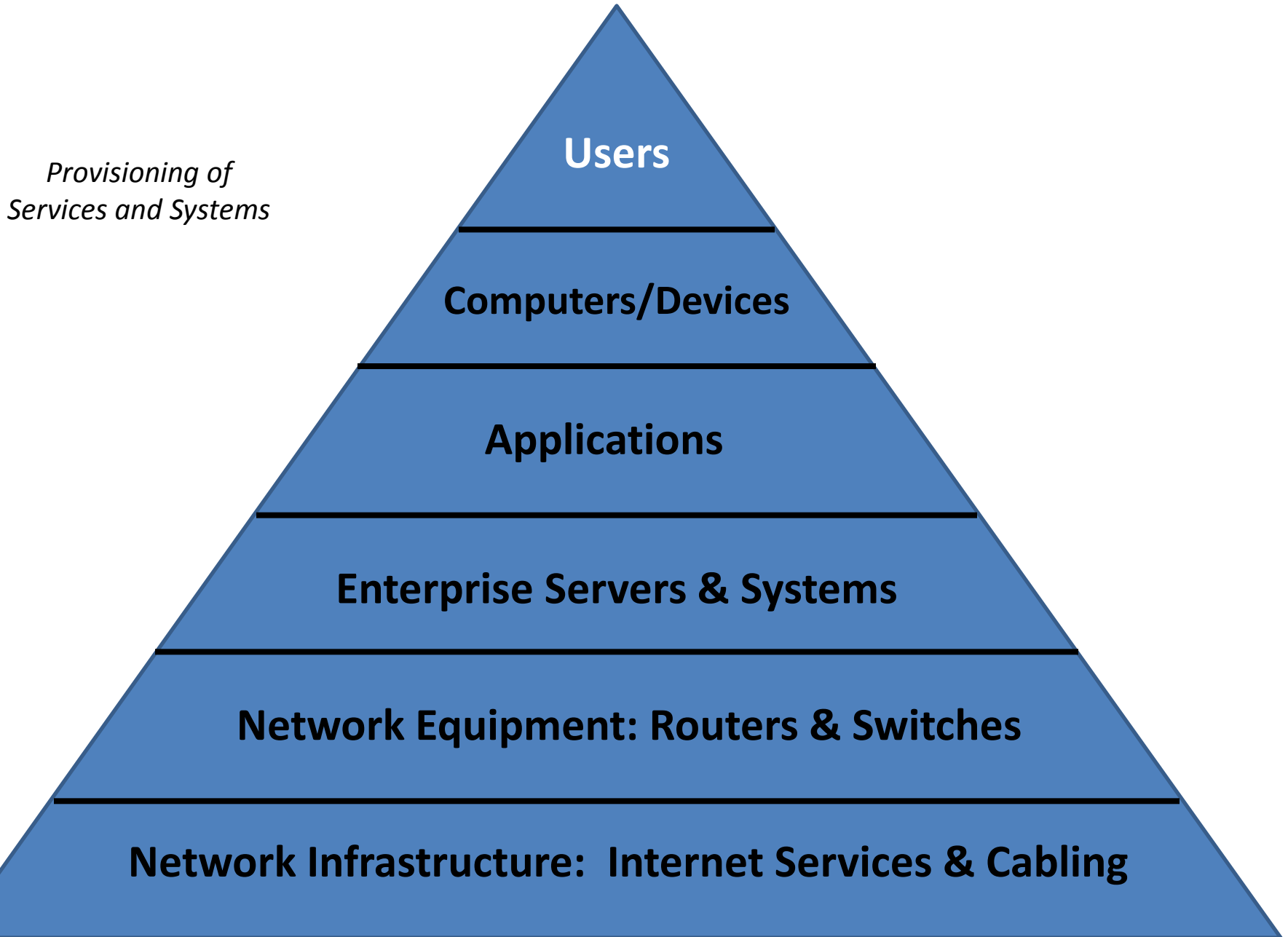
# Computers / Devices

- 13,000 computers
- 2000+ iPod Touches
- 300+ iPad/iPad minis
- 2,000 – 10,000 BYOD

# Computers / Devices

- Known: over 5000 are over 4 years old
- In process of developing computer replacement plan
- Preparing SBAC/CCSS testing – determining if labs need to updated or added

# DISTRICT TECHNOLOGY HIERARCHY

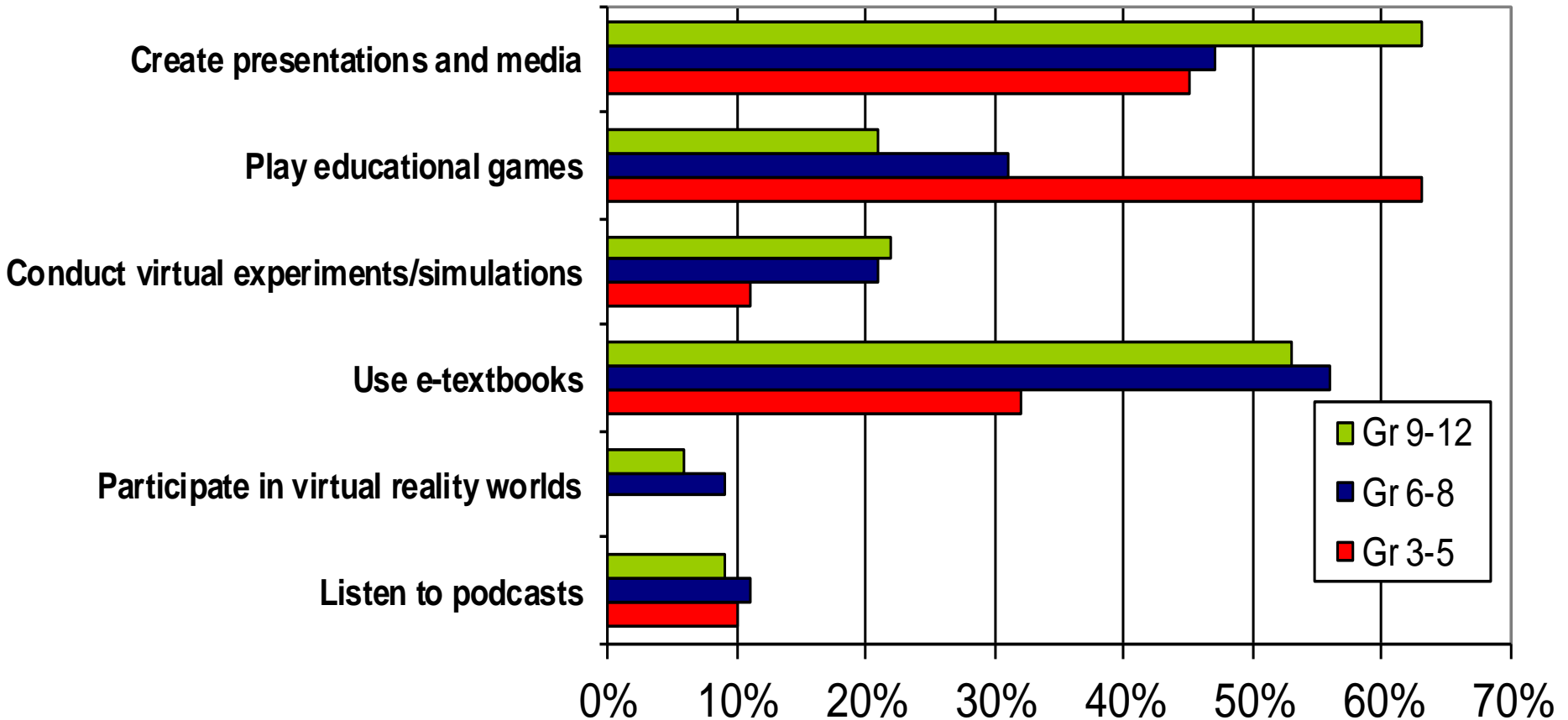


# Users

- Over 51,000 students
- Over 4,000 employees

# Today's Student...

## How Students are Using Digital Content for Schoolwork





# Today's Student...

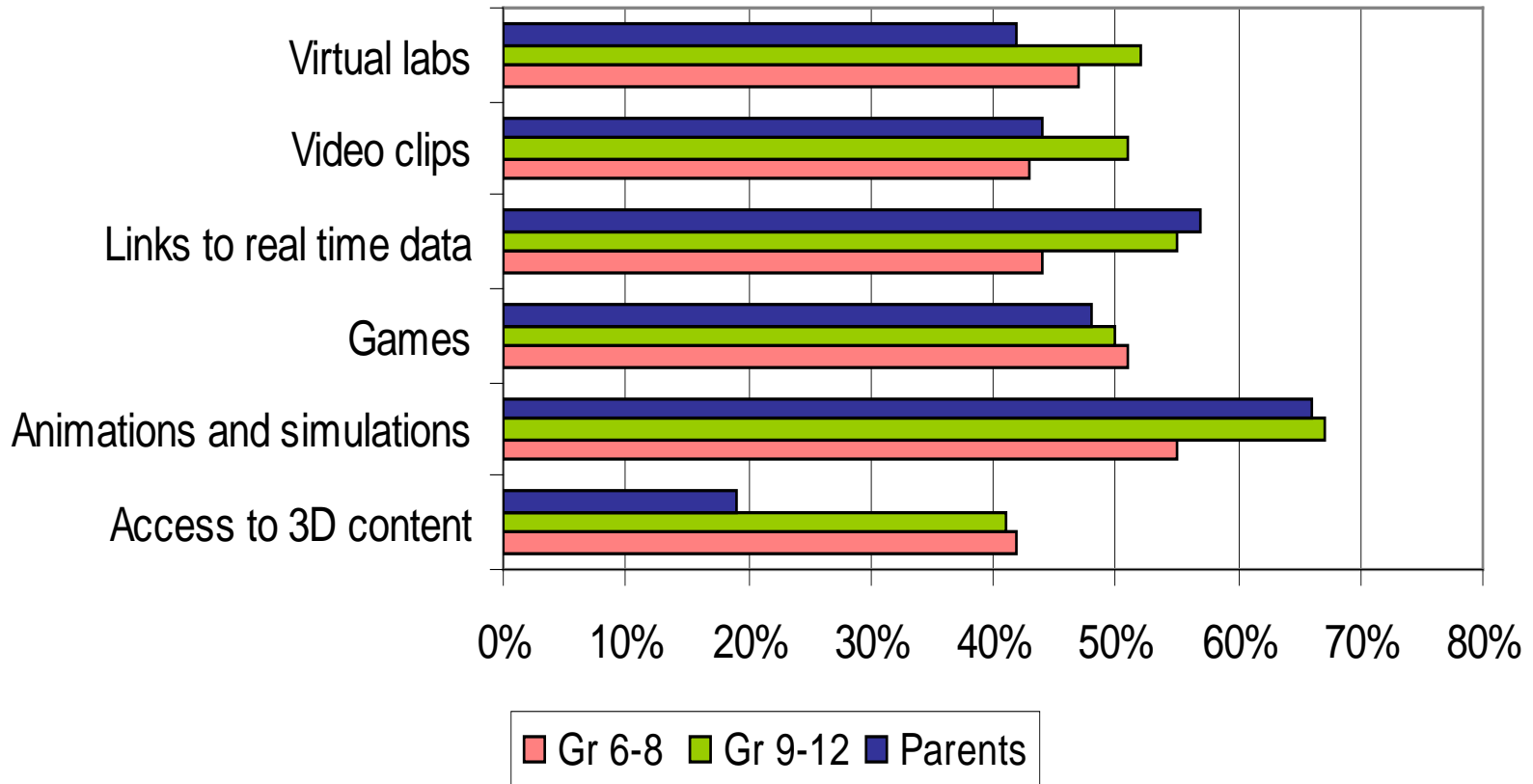
Students – Grades 6-8: How would you use your mobile device to help you with schoolwork?

#1: To increase effectiveness of school:

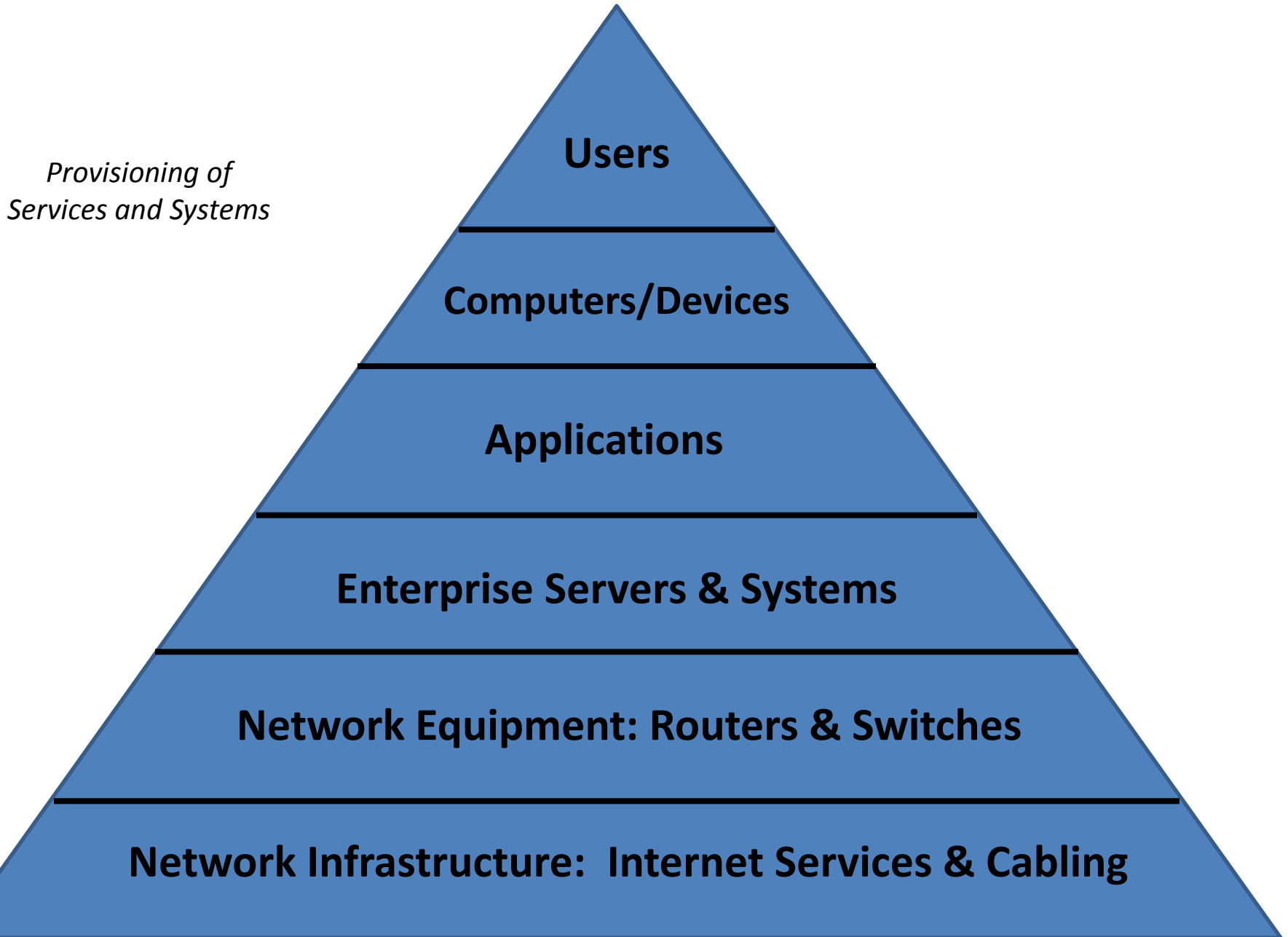
	<b>CUSD</b>	Nat'l
Check grades	80%	69%
Take notes for class	60%	61%
Access online textbooks	69%	48%
Learn about school activities	42%	41%
Use the calendar	43%	35%

# The Ultimate E-Textbook: CUSD

## Empowering Digitally-rich Content through the E-Textbook



# DISTRICT TECHNOLOGY HIERARCHY



# Questions

Thank you