



# South Orangetown Central School District

## 2012-13 Technology Status Report

And

## Budget Overview



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# Emerging K-12 Technology Trends

- Mobile Learning
  - Connectivity
    - Wireless Access
    - Internet Bandwidth
  - Virtualization
    - More with Less
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# Mobile Learning

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# Research

- **2010 Pew Research** indicates that **75% of students** ages 12-17 own a phone
  - **By 2015 80%** of people accessing the **Internet** will be doing so from **mobile devices**
  - Within the next year – Internet-capable devices will **outnumber computers**
  - In **Japan**, over **75% of Internet users** already use a **mobile** as their **first choice** for access
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# Mobile Learning and BYOD

- ❑ Districts **can't afford** to buy computing devices for every student – fiscally constrained
- ❑ **Hard to sustain** a 1-to-1 program year after year – cost prohibitive
- ❑ **Replacement** and **repair** of aging laptops have impacted many 1-to-1 initiatives
- ❑ Many school-age children have **their own computing devices** – smart phones, iPods/iPads, Kindle Fire, Nook Tablet, netbooks, laptops, etc.

**Virtually all higher ed students utilize some form of mobile device**

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# Benefits of Mobile Learning

- ▣ **Enriched teaching** and **learning** experience
  - ▣ **Increased access** to learning resources
  - ▣ Studies have shown:
    - ▣ Fewer attendance and discipline problems
    - ▣ Lower dropout rates
    - ▣ Increase in student achievement
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# Project Tomorrow - 2010 Survey

- ▣ **294,399 K-12 students**
  - ▣ **42,267 parents**
  - ▣ 35,525 teachers
  - ▣ 2,125 librarians
  - ▣ 3,578 school/district administrators
  - ▣ 1,391 technology leaders
  - ▣ **6,541 public and private schools**
  - ▣ **1,340 districts**
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## Percentage of Students with Access to Mobile Devices (2010)

Device	K-2	Gr 3-5	Gr 6-8	Gr 9-12
Cell phone	21	29	51	56
Smart phone	16	19	34	44
Laptop	37	42	60	67
MP3	37	55	79	85
Tablet device *	10	8	13	10

**\* Estimated 70 million tablets sold in 2011 (CNN Money - Fortune)**



How would they use mobile devices school?

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## “Increase effectiveness of school”

- Check **grades** (74%)
  - Take **notes** in class (59%)
  - Use the **calendar** (50%)
  - Access **online textbooks** (44%)
  - Learn about **school activities** (40%)
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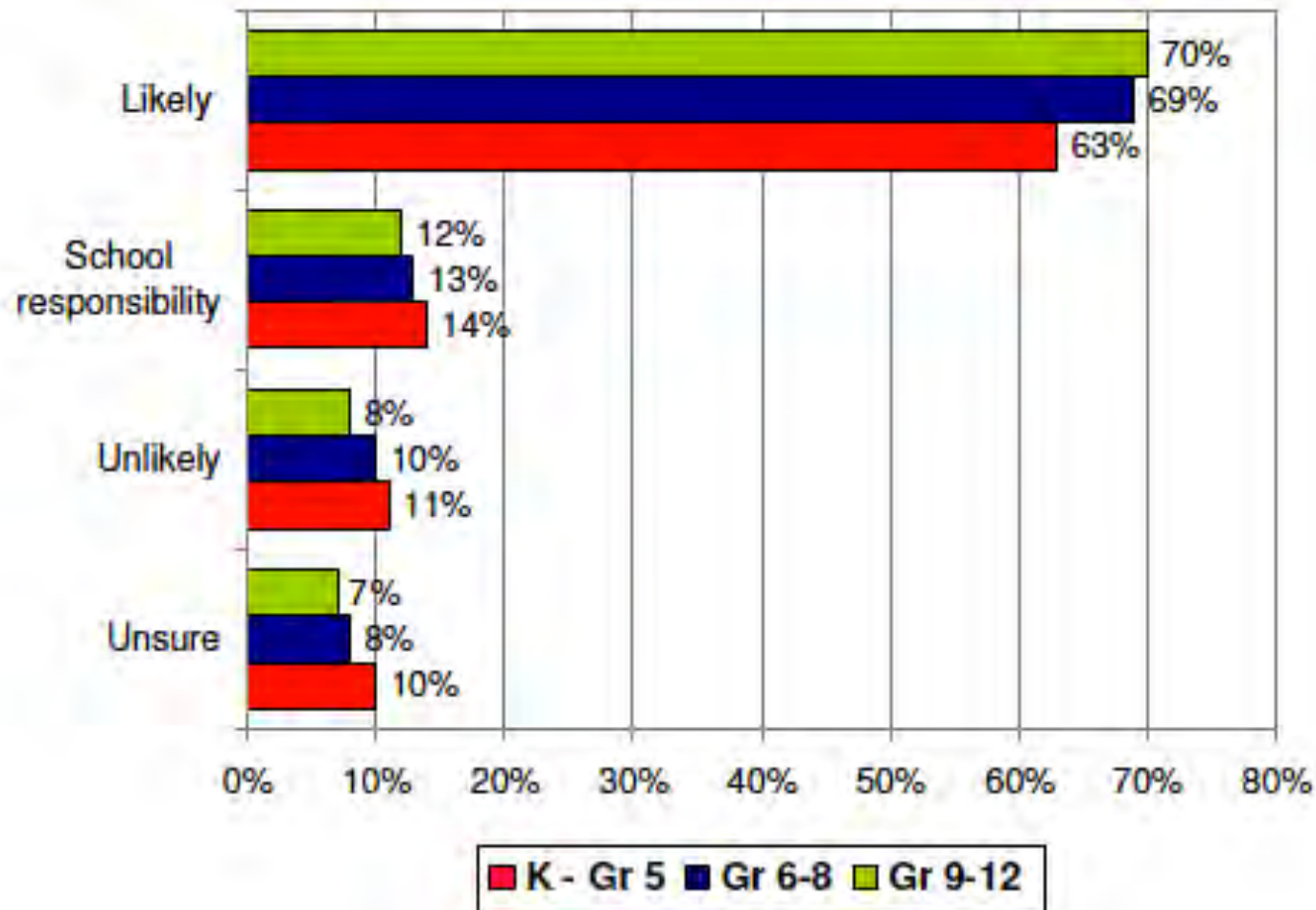
## “Leverage capabilities for enhanced learning”

- **Internet research** (68%)
  - **Collaborate** with peers & teachers (53%)
  - **Create** and **share** documents (37%)
  - **Record** lectures/labs to review again later(35%)
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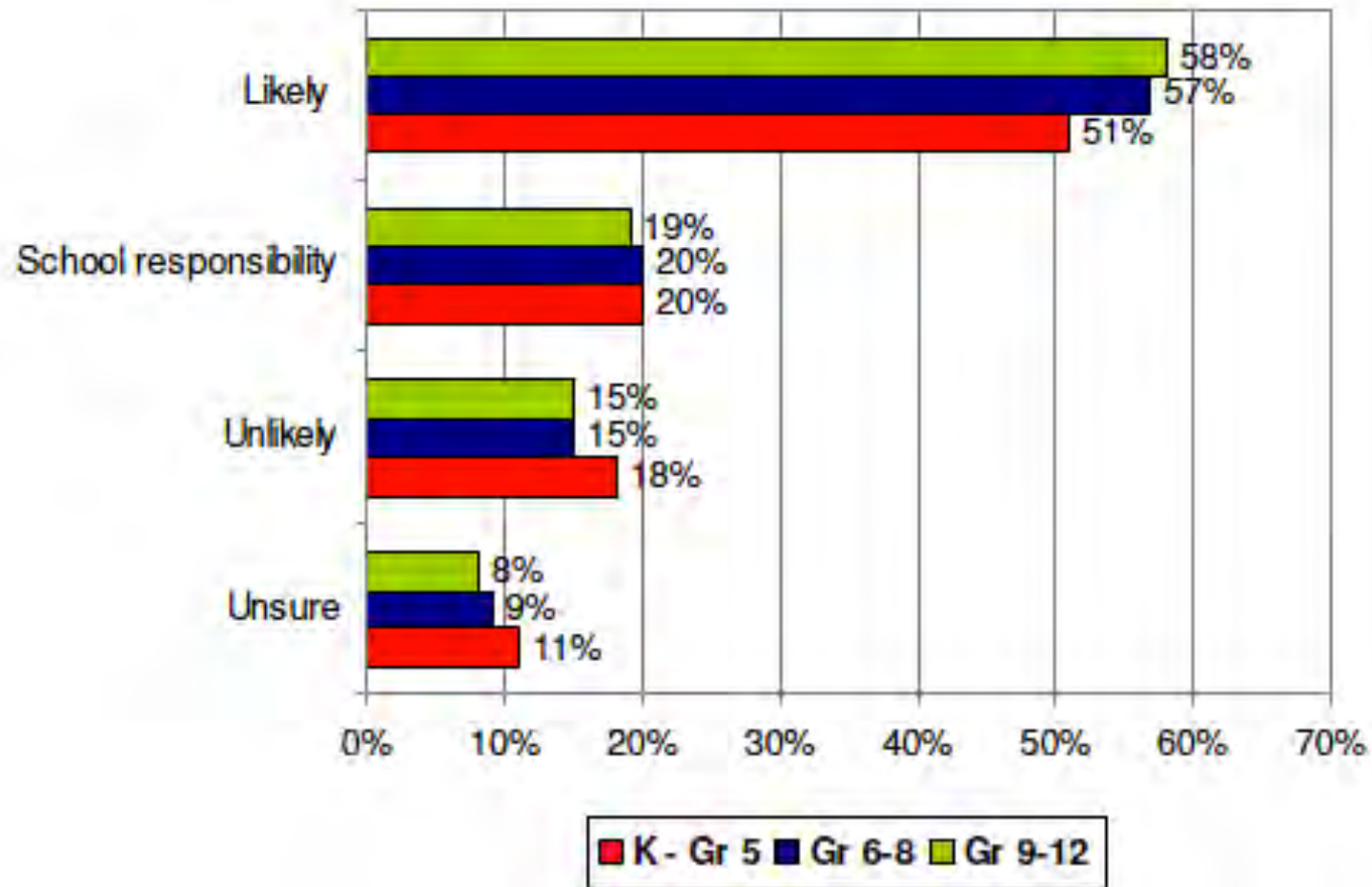
# Obstacle to using technology?

**53%** of middle and high school students say that the **largest obstacle they face in using technology in their school today** is their inability to use their own cell phone, smart phone or MP3 player

# Parents are likely to buy a mobile device for their child to use at school



# Parents are also likely to purchase a data plan for mobile device



# Mobile Learning

- Mobile devices are becoming **the resource** and **communication tool** of the future
- **BYOD** is the **new “1-to-1”**
- **It’s not about the devices** – it’s about changing the way we **deliver instruction** and how **students learn**



**BYOD is INEVITABLE**

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# Perspectives

School: There's an App For That

Joe's Non Notebook

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**Personal computing devices are a normal part of everyday life**





Connectivity

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# National Education Technology Plan

“A crucial element of an **infrastructure for learning** is a **broadband network** of **adequate performance** and reach, including **abundant wireless coverage** in and out of school buildings.”

“**Adequate**” means enough **bandwidth to support simultaneous use by all students and educators** anywhere in the building and the surrounding campus to routinely use the Web, multimedia, and collaboration software. “

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# Driving the Need for Connectivity

- **Mobile Learning and BYOD**
- Increased use of **web based resources**
  - Web 2.0
  - Social Media
  - YouTube
  - Discovery Education
- **PARCC Assessments 2014-15** – every student multiple times a year



# Wireless and Broadband Access



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# Wireless Access

- **Coverage** (laptop carts) vs **Density** (personal devices)
  - **Expand our wireless** network to support large number of student devices
    - More wireless access points (each classroom)
    - Upgrade / enhance existing wireless controllers
    - Additional hardware and software maintenance
  - Increase access to computing technology for upcoming **PARCC assessments**
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# Broadband Access

- **Online learning** – Virtual High School, Moodle University
- **Media streaming** – YouTube / Discovery
- **Web access** – Web 2.0 / Cloud Computing
- **Online assessments** – PARCC

**Increase bandwidth to support the expanded use  
of Internet based resources**

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# Technology-rich Learning Environment

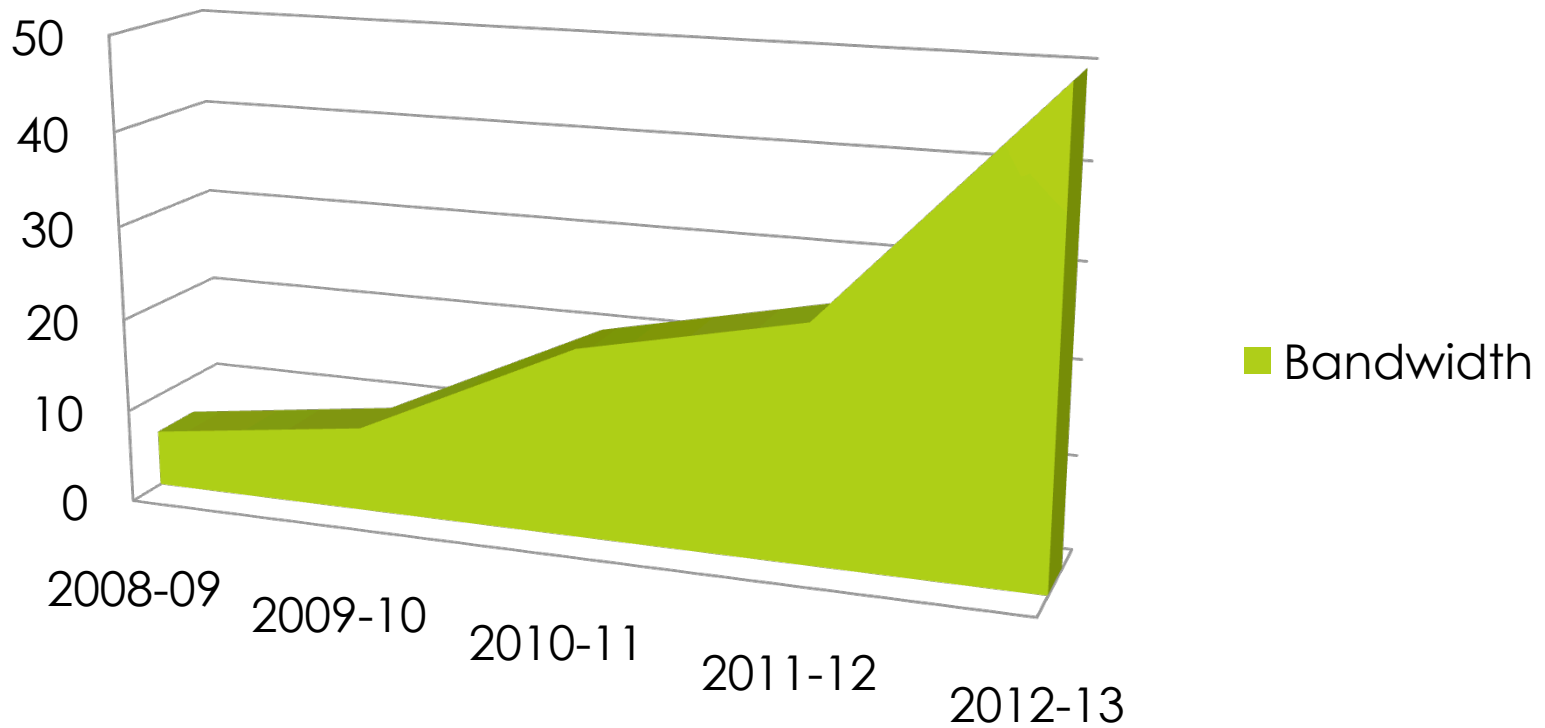
## State Educational Technology Directors Association (SETDA 2008)

- **2-3 years** - 10 Mbps per 1,000 students/staff (approx 25 – 30 Mbps)
- **5-7 years** - 100 Mbps per 1,000 students/staff (approx 250 – 300 Mbps)

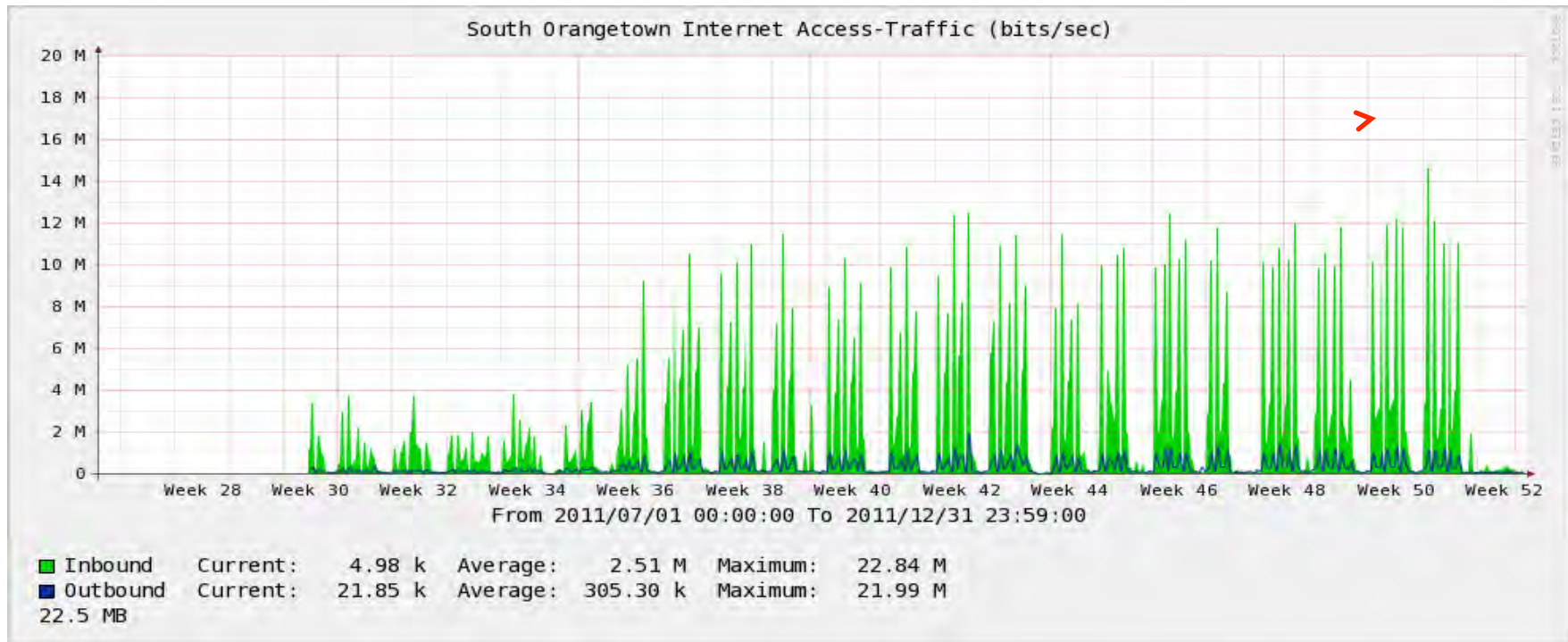


# District Bandwidth Growth

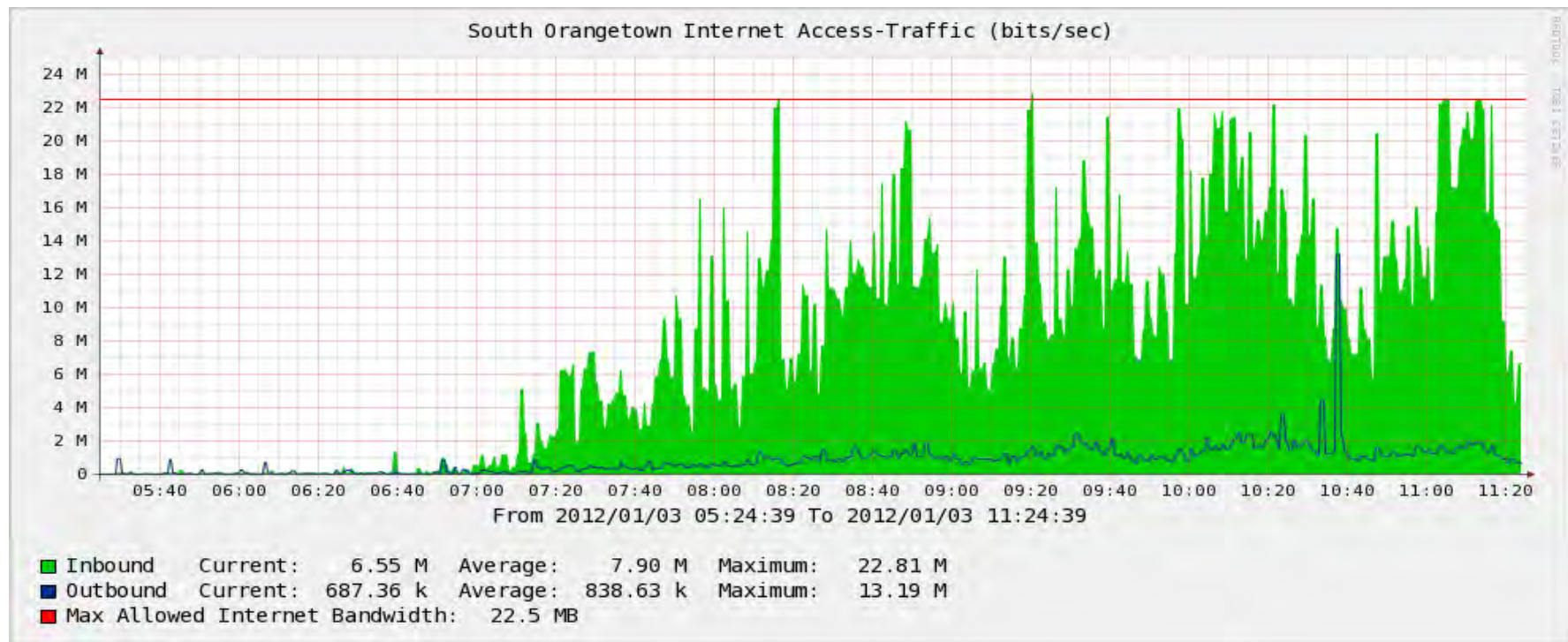
## Internet Bandwidth



# Increasing Bandwidth Needs



# A Day in the Life of...





# Virtualization Technologies

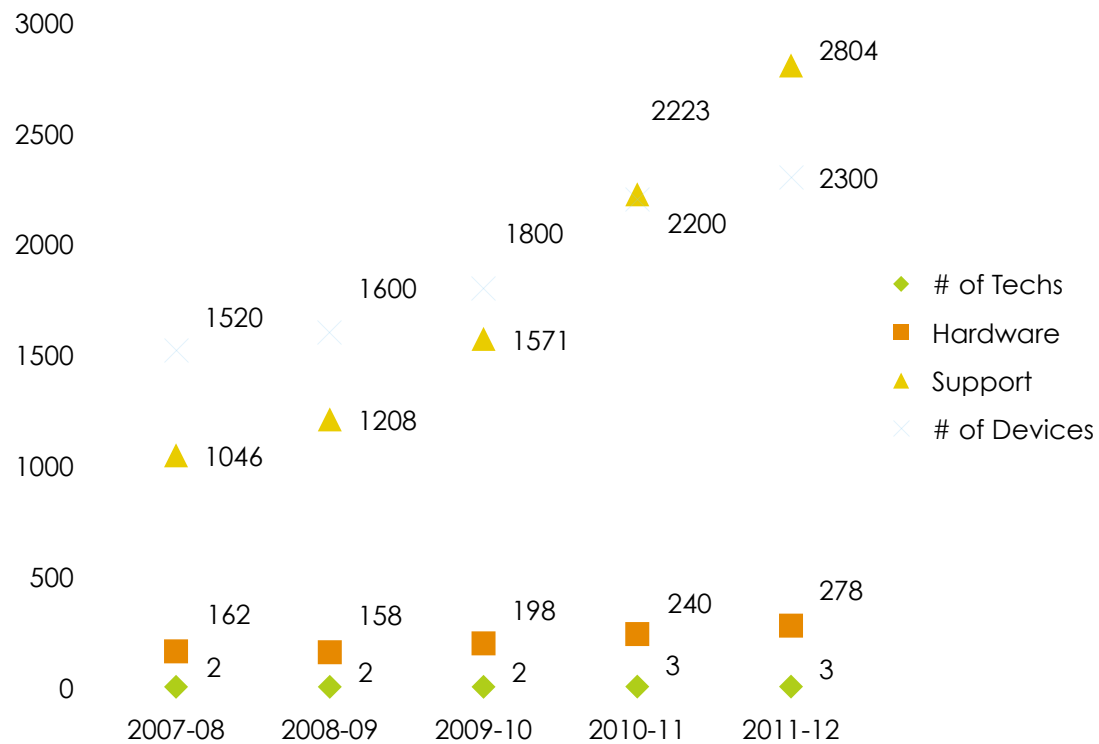
Doing More With Less

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# Challenges We Face

- **Budget constraints**
  - **Aging technology** – desktops and laptops
  - **Finite support staff** – ability to hire more?
  - **Increasing technology demands** – “we want more”
  - Every new technology requires appropriate **“Day 2” support**
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# Why Virtualization?



**We need to be able to do more with less!**

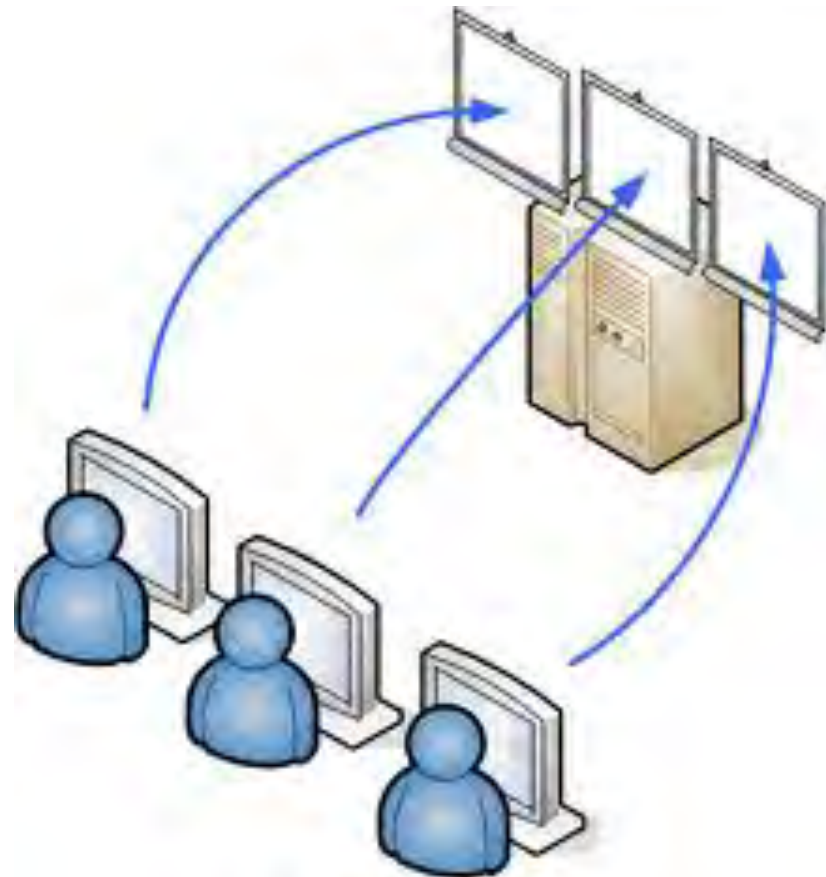
# VDI – Virtual Desktop Infrastructure

- ❑ **Virtualized Server Infrastructure**

- ❑ Successfully using virtual servers for 3 years
- ❑ Easier for the technicians to support district –  
**Centralized Management**

- ❑ **Virtualized Desktops**

- ❑ Shift **processing power** from endpoint back to the **central server**
- ❑ Remote access to user desktop



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# Benefits of Virtual Desktops

- **Extend life** of existing computers
  - **Reduce acquisition costs** by 40% – up to \$400 dollars per computer
  - **Reduce support costs** – single “**Golden Image**” to manage (no more reimaging workstations)
  - **Increase level of service** – centralized management (ability to rollout new applications quickly)
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# Benefits of Virtual Desktops

- **Less energy consumption** – constraints of our building power infrastructure
- **Easier to manage more devices with less techs** – reduce IT complexity
- **Quicker break fix response** – replace with thin client device
- **\$400-\$500 Thin client vs \$900 desktop/laptop**

**“Anywhere Access – Any device”**

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# Long Range Planning

"Investing in the Future"

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# What does this mean?

**Invest in technologies to support 21<sup>st</sup> Century Learning  
and reduce our long term operating costs**

- ▣ **Cable our classrooms** for **wireless, PARCC** and **VoIP**
  - ▣ **Enhance** our **wireless infrastructure** to support **Mobile Learning**
  - ▣ **Virtualization infrastructure** to reduce support costs
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# Phased Approach for Long Term



# Phase 1

Projects	Notes
Network Cabling – Increased Access	District wide
Wireless Expansion – Mobile Learning	TZHS / SOMS
VDI Infrastructure	District wide
VDI Pilot 1	Technology labs
IPA 2011-12	District wide

# Phase 2

Projects	Notes
Wireless Expansion – Mobile Learning	CLE / TZE
VDI Infrastructure Expansion	District wide
VDI Pilot 2	Replace EOL PCs
Voice over IP – Infrastructure	District wide
IPA 2012-13	District wide

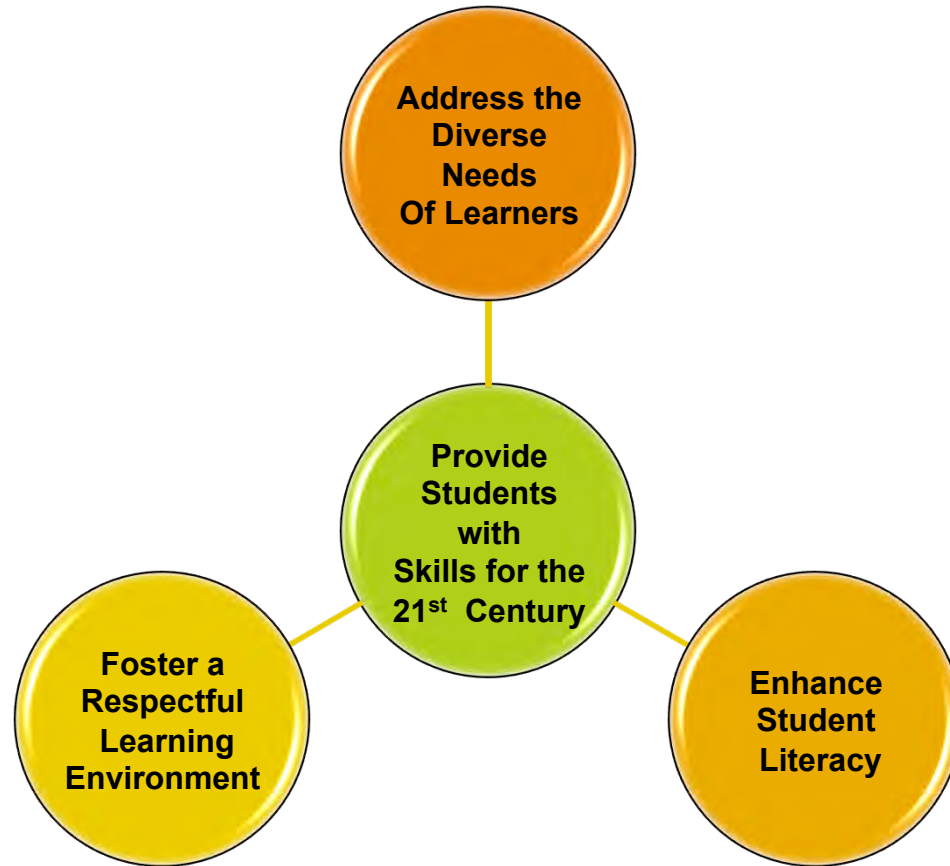
# Phase 3

Projects	Notes
VDI Implementation	Refreshment Cycle
Voice over IP Implementation	District wide
IPA 2012-13	District wide

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## How do we accomplish these initiatives?

- ▣ **Capital Project / Bond** – not feasible in these economic times
  - ▣ **BOCES IPA** - cannot cover all initiatives
  - ▣ Look to **reallocate savings** where possible
  - ▣ Shift funding “**priorities**” to support future growth
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# Investing in the Future of our Students

In support of 21<sup>st</sup> Century Teaching and Learning

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Thank You

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