NSW GOVERNMENT Education & Communities

Impacts on the DEC Wide Area Network

Information Pack

June 2015

The DEC Wide Area Network (WAN)

- Depending on school classification, enrolment and usage, appropriate link capacities are provided to each school
- Schools rely on the DEC WAN infrastructure to deliver the services required
- As usage has dramatically grown over the past year, impacts on services are occurring

Internet

Internet Filtering / Staff Email / Video Conferencing / ERN / EBS4 / SAP / OASIS / SBSR / Oliver / SMART / MyPL / AMU / EMU / SMU and many other DEC services

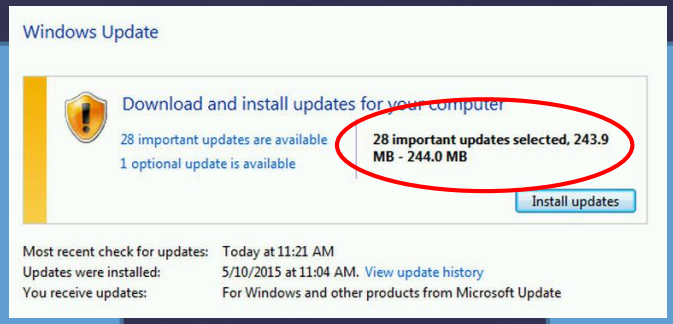
small

medium

large

The Windows Update Effect

- In eT4L schools, Windows Updates are managed via the eT4L Server and all updates are **pushed locally**
- In non-eT4L Schools with no WSUS server, Updates are **pulled** from the internet by each individual PC device



Microsoft

NSW DEC Windows Server Updates Services
fully managed updates

School eT4L Server
with Windows Update service delivers all updates locally

ET4L

Local fleet of eT4L desktops, laptops and tablets

In May 2015, the regular "Patch Tuesday" update was 244MB in size.

In an eT4L school, the total download to cover 200 eT4L Windows devices was 244MB

Over just two days in May, the total downloads into NSW DEC for Windows Updates was 1.12 Terabytes

Microsoft

Every desktop, laptop and tablet in the school pulls its own download of all updates direct from Microsoft through the school's and DEC's Internet gateway

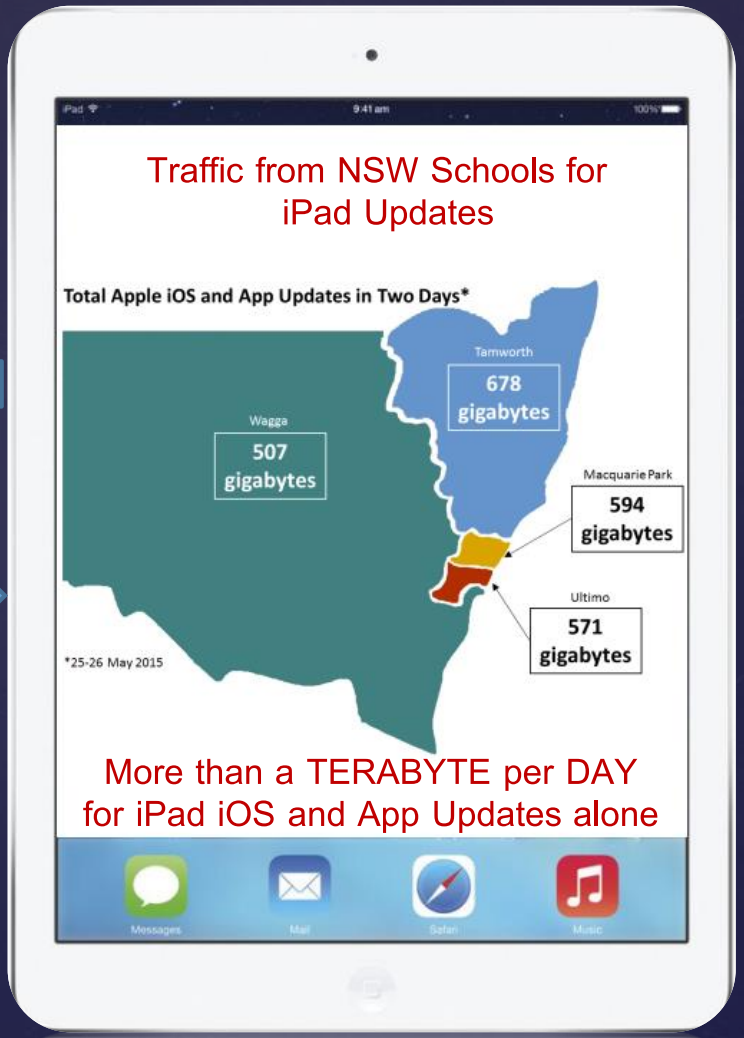
In a non-eT4L school with no Windows Server Update Services (WSUS) and no local internet caching services, the total download to cover 200 Windows devices was 488 gigabytes and would have flooded the school's gateway for days.

The iPad Effect

- Over 80% of schools in NSW are using iPads ranging from “some” to hundreds
- Unmanaged iPads easily **generate gigabytes of updates** as they individually request them whenever they want

One School

Statewide



This level of traffic can severely hinder or stop all educational and admin use of the school’s WAN link

The BYOD Effect

- Around 20% of NSW DEC schools have implemented a Bring Your Own Device (BYOD) program
- Of those schools, around 1/3 report that *"more than 100 BYODs come to school on any given day".*

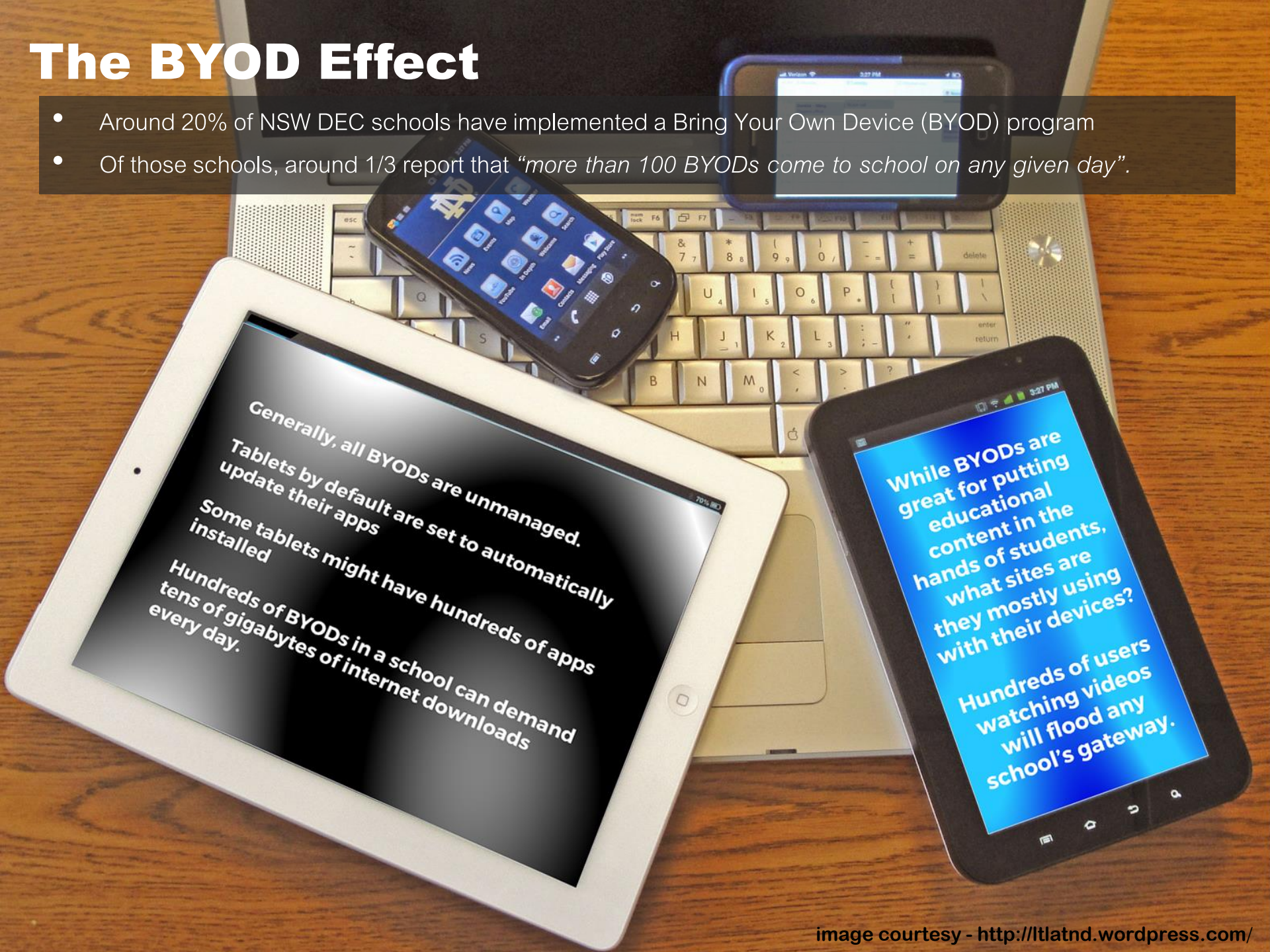


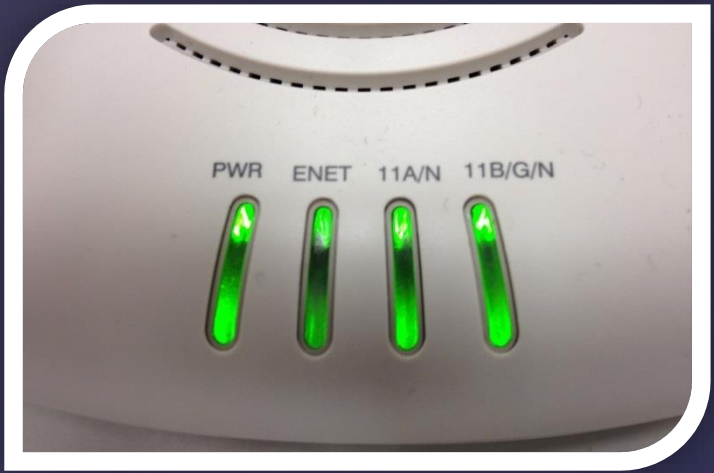
image courtesy - http://ltlatnd.wordpress.com/

The Cloud Effect

- As more users and devices “operate in the cloud”, the demand for bandwidth will continue to grow
- As more systems that were previously locally-hosted, move to the cloud, user-experience will rely on connection

Local Bottlenecks in your school

- Sometimes performance issues are caused by local network and PC configurations
- Your local ICT field services support team can provide advice on managing and rectifying local bottlenecks



All four indicator lights on your Aruba WAPs should be green. Orange indicates a bottleneck:
- **ENET:** The LAN connection is only 100MBit/s
- **11B/G/N**: The WAP is not running in N mode

Backbone cabling between all Ethernet switches should be running at Gigabit speed

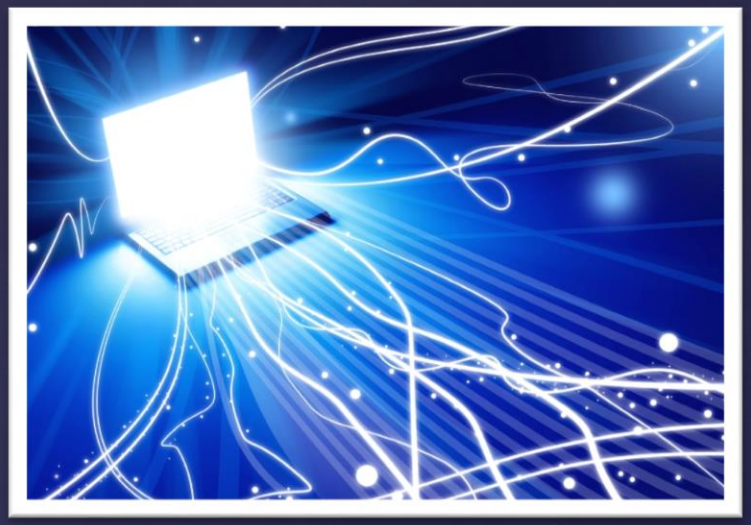
If your school has concerns about network and device performance, please log a service desk call on 1800 338 483 or online at http://tinyurl.com/1800338483

Too many mobile devices and insufficient WiFi Access Points will create bottlenecks. Ideally, there should be no more than 30 mobile devices per WAP with very few or no barriers between the devices and the WAP

DEC Remediation Actions

- NSW DEC Information Technology Directorate is actively addressing WAN and ICT systems performance as a high priority. Planned responses include:

Monitoring and investigating performance incidents and saturated links from schools across the state



Increasing the capacity of strategic pipes

Microsoft Google

Working with strategic DEC partners
To improve caching and throughput
in our environment

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