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Student Use of the Wireless Network

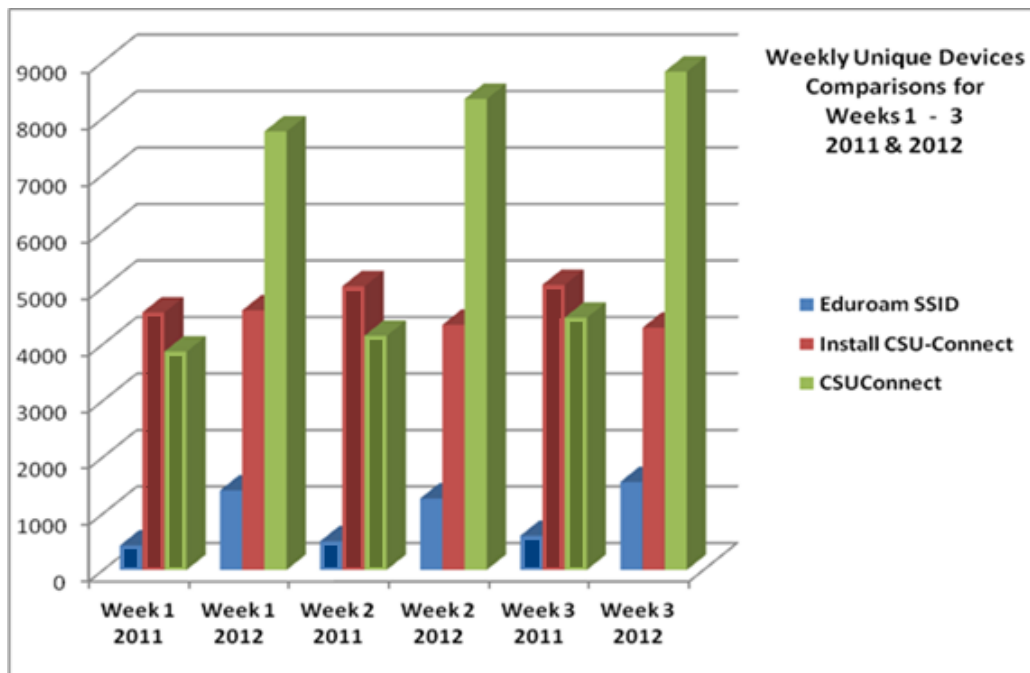
Phil Roy
Director, Operations,
Division of Information Technology

CSU Wireless

- Ubiquitous Wireless across all buildings and outdoor areas
- Limited filtering for end device security: we don't block P2P
- Student quotas:
 - Residential 10G/m (peak, off net)
 - Non Residential 1 G/m (peak, off net)
- Same service across all residences

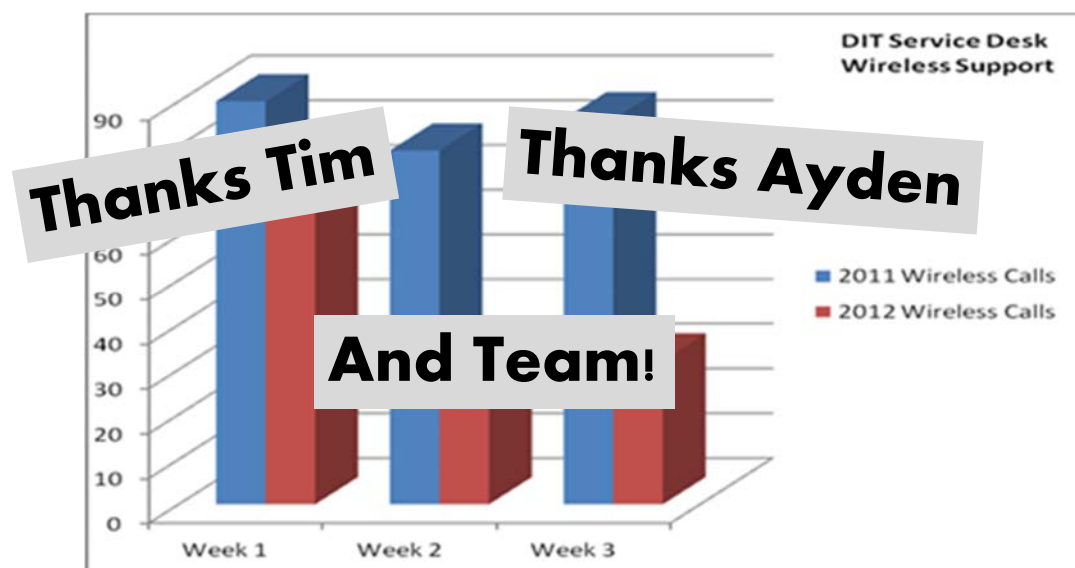


158% Increase in connections



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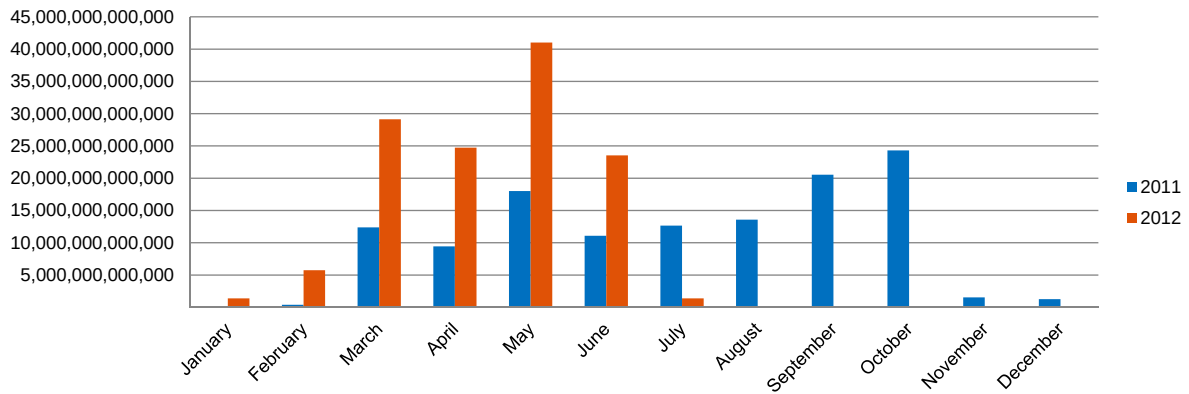
Reduced Support Calls



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235% Increase in wireless traffic

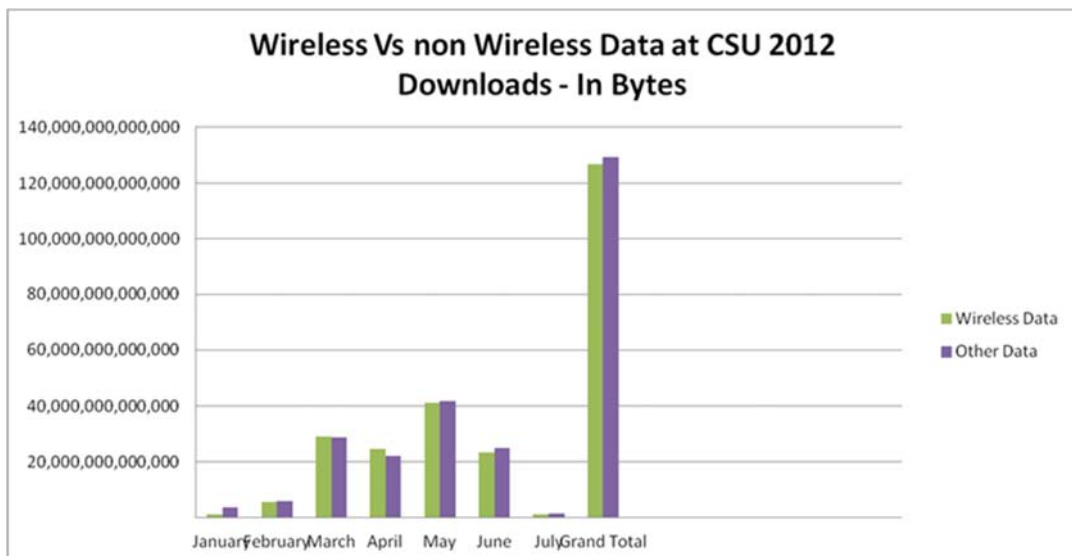
**Year to Year Usage Comparison
Wireless Downloads in Bytes**



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Wireless - ~ 50% of Internet traffic

**Wireless Vs non Wireless Data at CSU 2012
Downloads - In Bytes**



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Measurement Definitions

- Measure of wireless Internet traffic
- Wireless traffic is both students and staff
- Traffic volume measurements – not time, usage, impact, importance
- Data from TSA CAAB Billing system
- Protocol Signatures OK, but > 12 months old



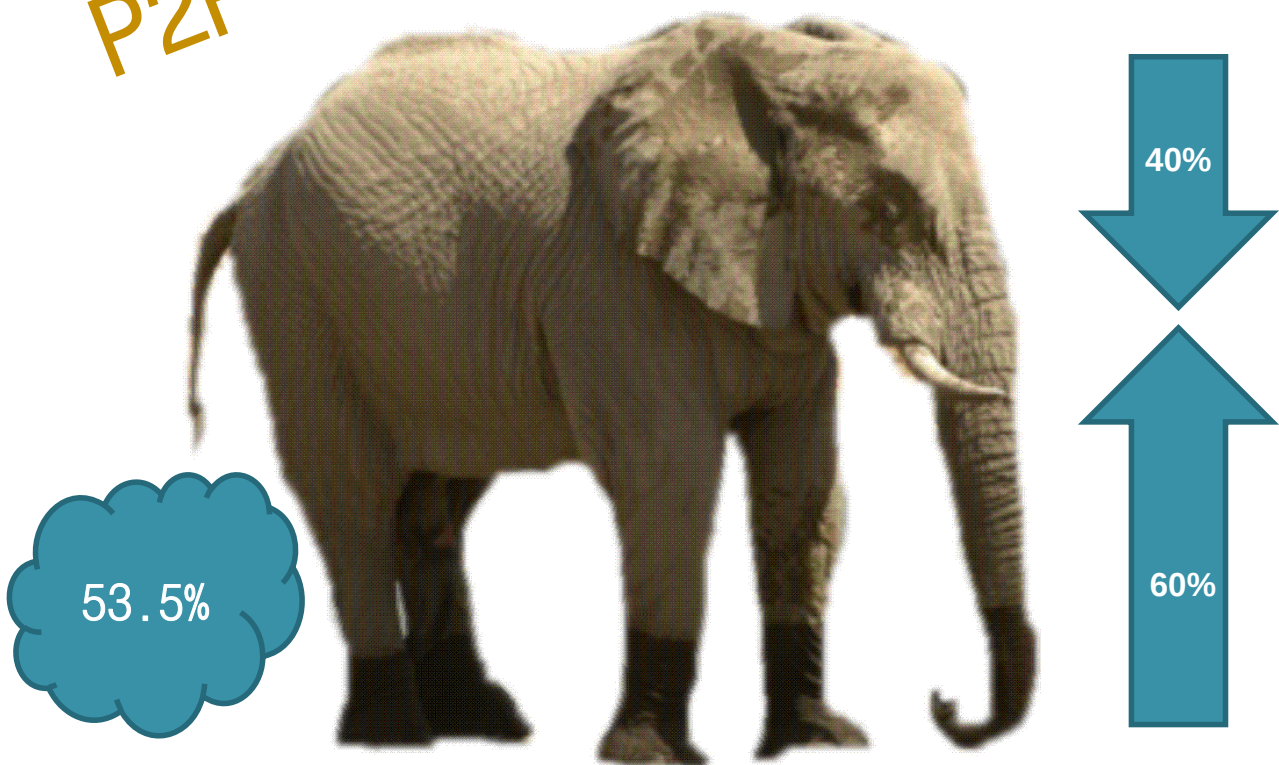
The Leaders in
Telecom Expense Management

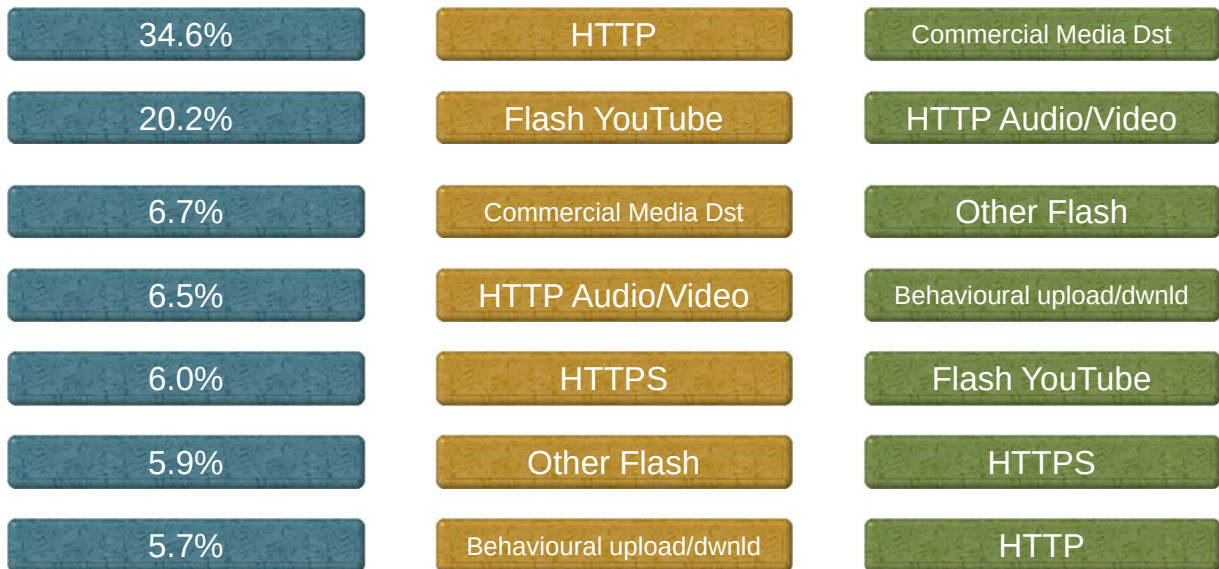


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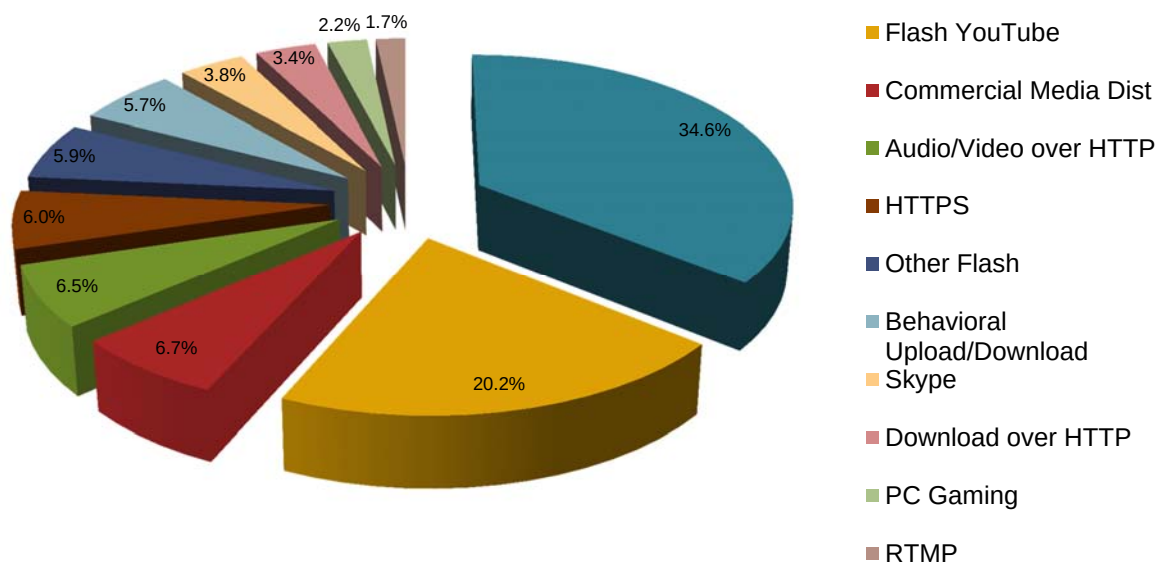
P2P

Internet Estimate*
51% in 2011 – 54%2016





2012 Wireless Traffic



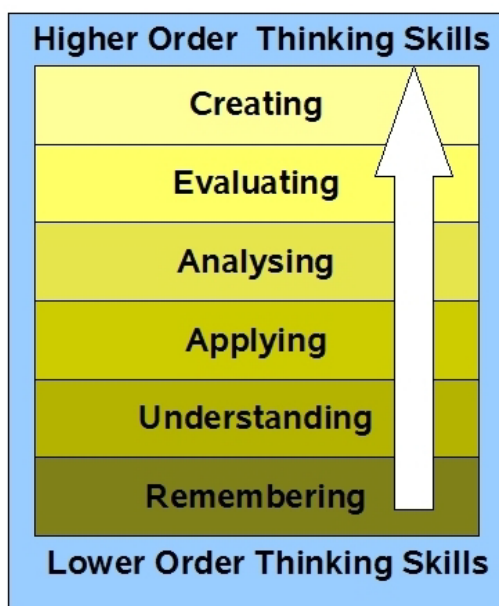
Below 0.0%

- m.csu - catalogues, bus timetable, Google maps API
- Library Catalogue lookups
- Wimba, Talisma
- Location Based Services
- FTP, RTSP, SMTP, H323
- Flash MySpace



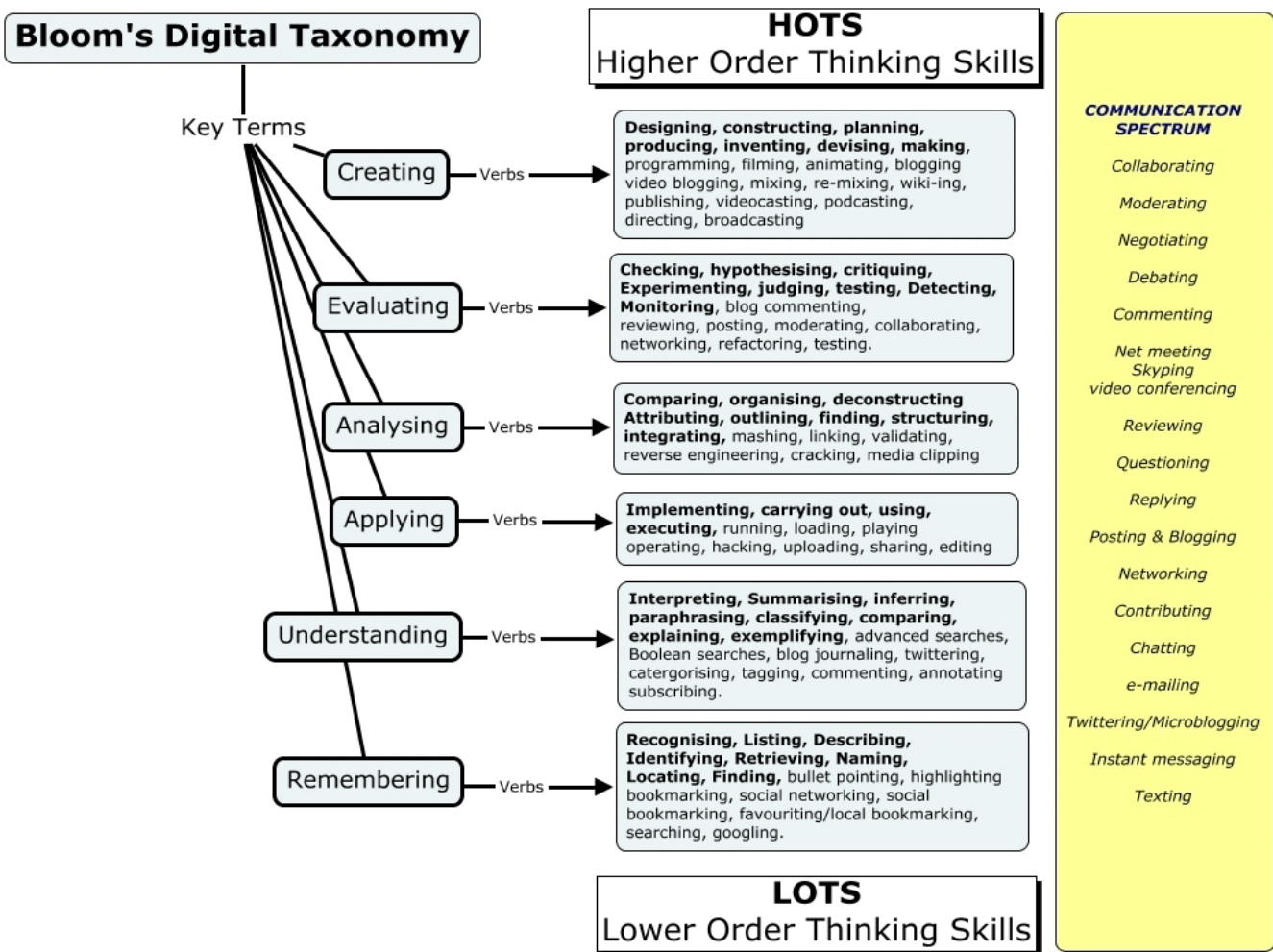
- Windows Live Messenger & File Tx
- Google Talk, VoIP & File Tx
- Yahoo Msngr, VoIP, & File Tx
- One-Click Hosting, VeriSign
- PlayStation, Xbox, Wii,
- Tunneling & OPsec VPN
- Terminals, ICQ
- Other Well-Known Ports

Back to Teaching and Learning



“It’s not about the tools, it’s using the tools to facilitate learning.”

Andrew Churches –
Blooms Digital Taxonomy



Student Satisfaction of Wireless Technology*

- Google Search Speeds
- Us of laptop as apposed to lab
- Access to quick email checks
- Laptop convenience
- Increase productivity
- Skills improvement

CSU WiFi Strategic Issues

- Wired vs wireless in residences
- WiFi vs Mobile broadband and the long term need to provide a wireless service
- Will the Elephant stomp – P2P

Developing a better understanding

- Wireless Usage – get a better understanding of usage: time, location, applications, value, importance, residential vs non residential usage;
- Analytics: more detail in reporting – stats on devices, connection stats (time, usage);
- Accessible HTTP stats – sites visited when using the wireless network;
- Increased understanding of how WiFi is being used in T&L. Learning Analytics
- Impact on Teaching and Learning

References

- Cisco Visual Networking Index 2011-2016.
http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481360_ns827_Networking_Solutions_White_Paper.html
- Churches, Andrew (2009). Blooms Digital Taxonomy.
<http://edorigami.wikispaces.com>
- Nyakudya M. N. (2012). Wireless technology diffusion within higher education institutions: Determining levels of student satisfaction. International Journal of Engineering and Management Sciences Vol 3(1), pp. 13-23.

Peer to Peer – 53.5%

Non Encrypted Bittorrent – 48%

Non Encrypted eMule – 1%

Behavioral P2P – 1%

Encrypted Bittorrent – 3%

Other P2P and P2P TV - .5%

40% downstream : 60% upstream