

Wireless Campus Project

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Agenda

- ❖ Legacy Wireless System
- ❖ Project Status
- ❖ Aruba Wireless LAN Infrastructure Overview
- ❖ Statistics
- ❖ Future Projects
- ❖ Questions

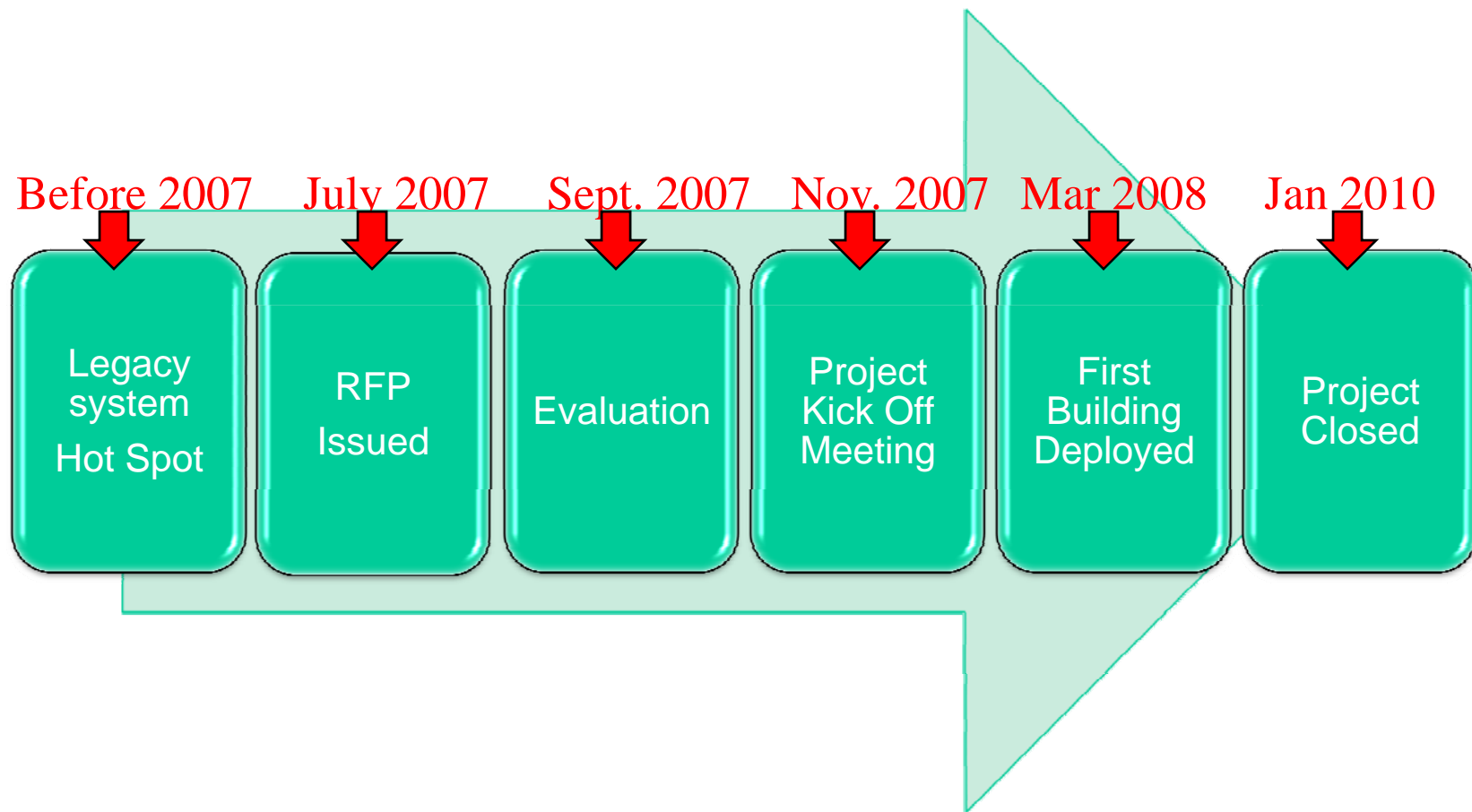
Legacy Wireless System

- ❖ 120 Cisco autonomous APs
(802.11B/G only) to cover hotspot areas
 - Autonomous APs works as standalone systems
- ❖ Open SSID with VPN for authentication and encryption
- ❖ Difficult to manage and troubleshoot
- ❖ Not very scalable

Project Scope and Goal

- ❖ CCS initiated a Campus Wireless Project in support of the Vision 2010 Strategic Plan
- ❖ Goal: To provide Wireless LAN access for students and staff in all populated areas of the campus.
- ❖ Scope: To build a resilient and robust wireless System
 - Secure, Scalable, Flexible and Manageable

UO - Wireless Milestone



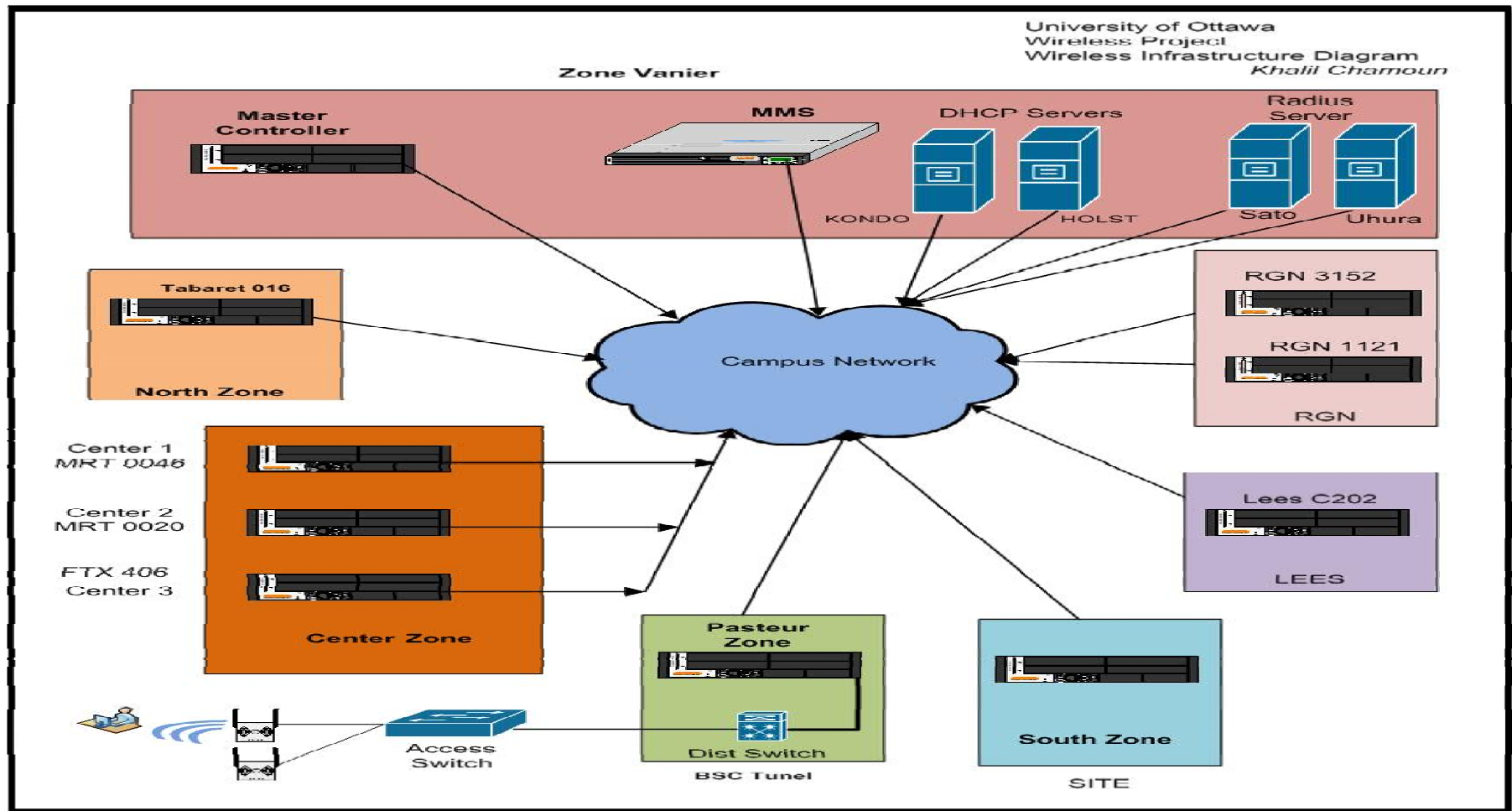
Project Status and Achievements

- ❖ 36 buildings have been covered
- ❖ 83 Telco Affected (including 9 new)
- ❖ 11 Controllers
- ❖ 2250 Lightweight Access Points
- ❖ 802.11a/b/g
- ❖ Introduction of WPA
- ❖ 2 SSIDs: uOttawa and uOttawa-WPA
- ❖ guOttawa upon request for Conferences
- ❖ 802.11n Pilot Project at SITE
- ❖ Servicing up to 15,000 unique devices per day

Wireless Deployment Map



Wireless Infrastructure Overview



Aruba 6000 Mobility Controller and Access Point



AP 65
a/b/g

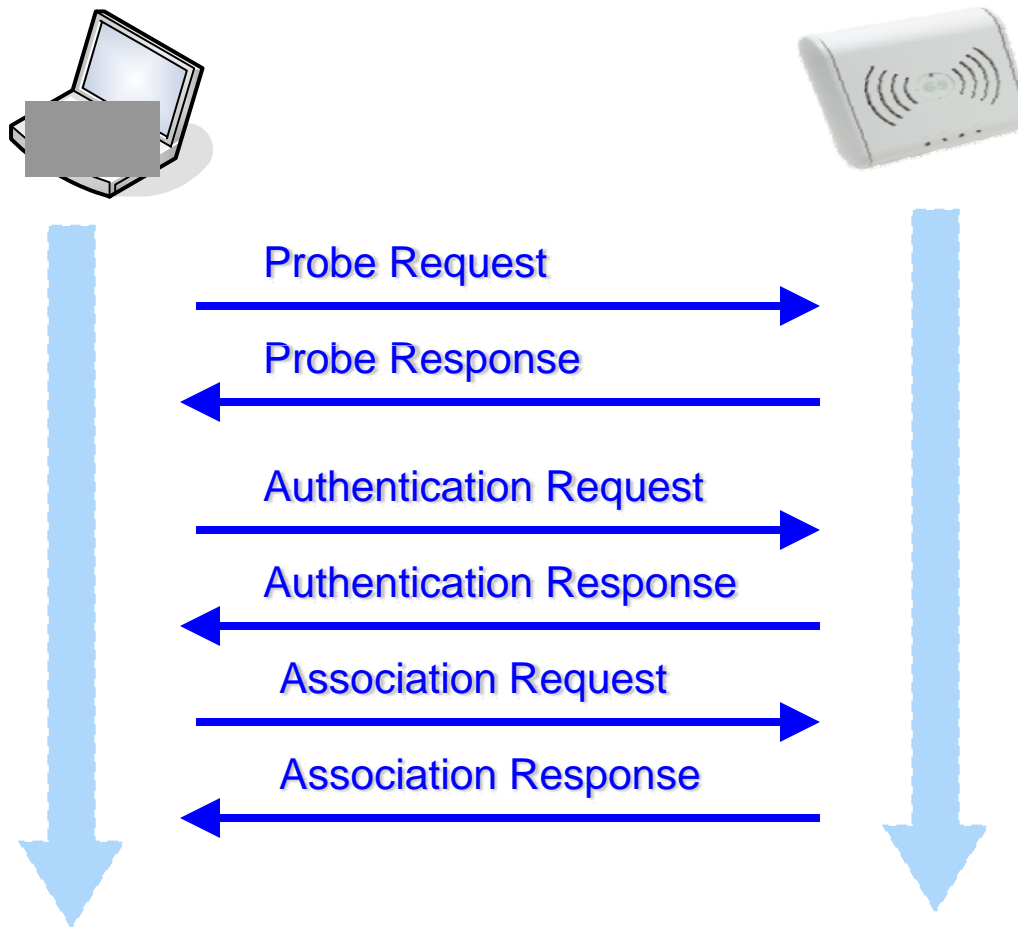


AP 125
a/b/g/n

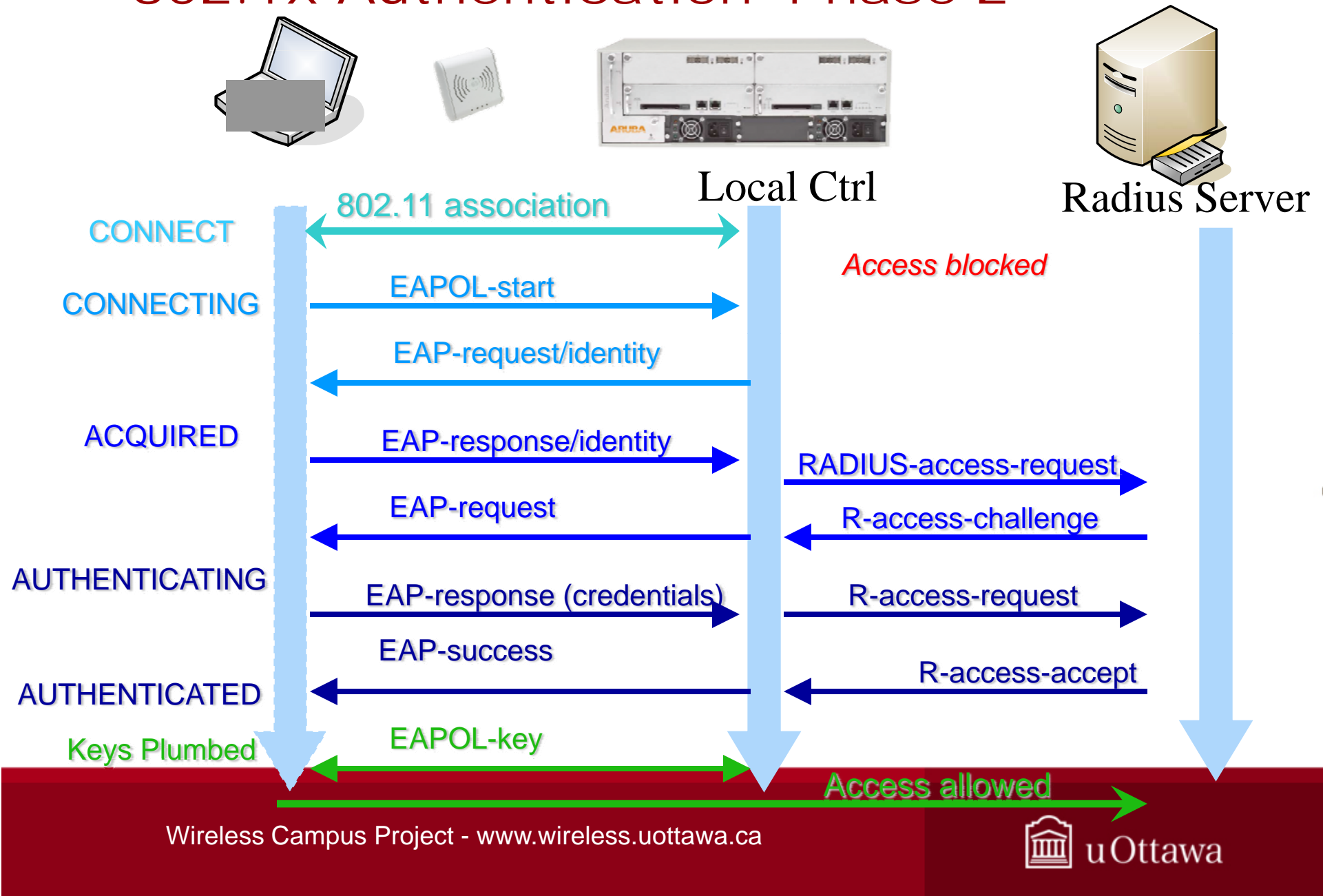


AP 105
a/b/g/n

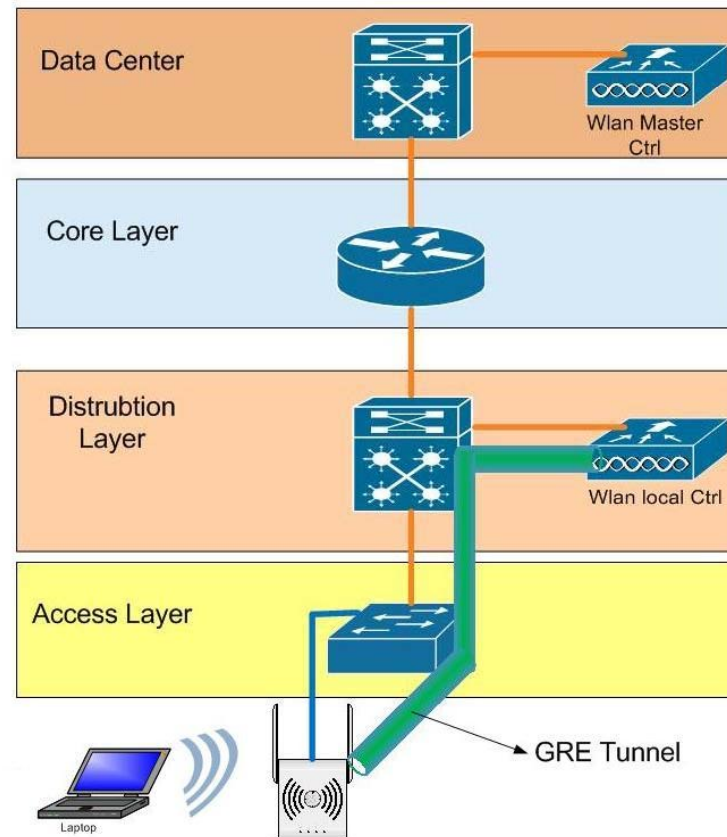
802.1x Authentication- Phase1



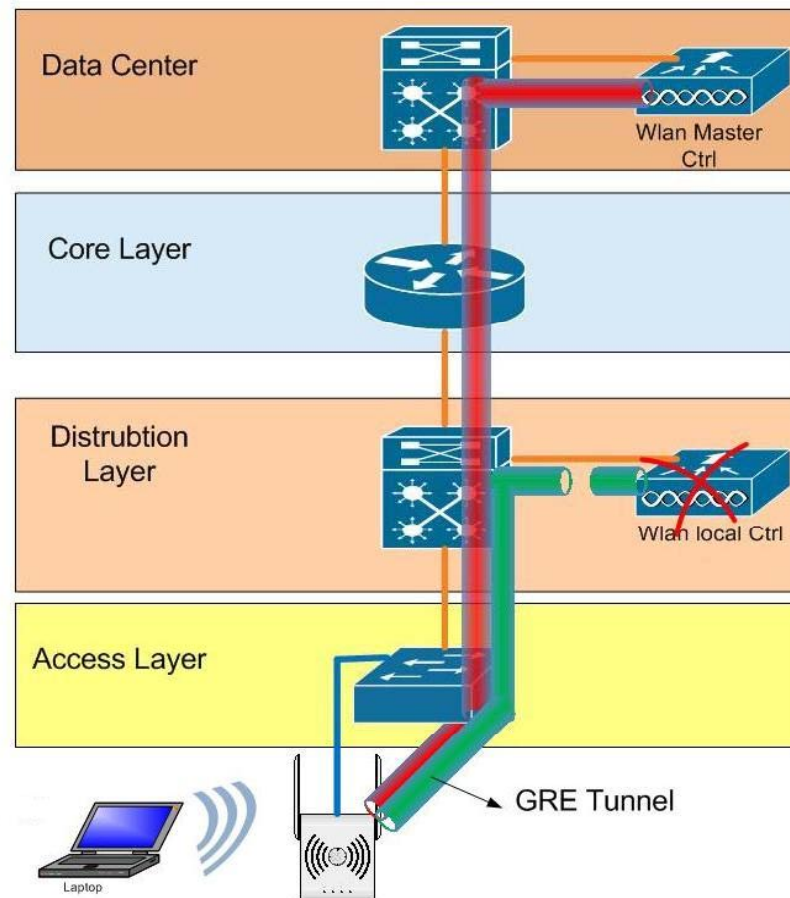
802.1x Authentication- Phase 2



Logical WLAN Architecture



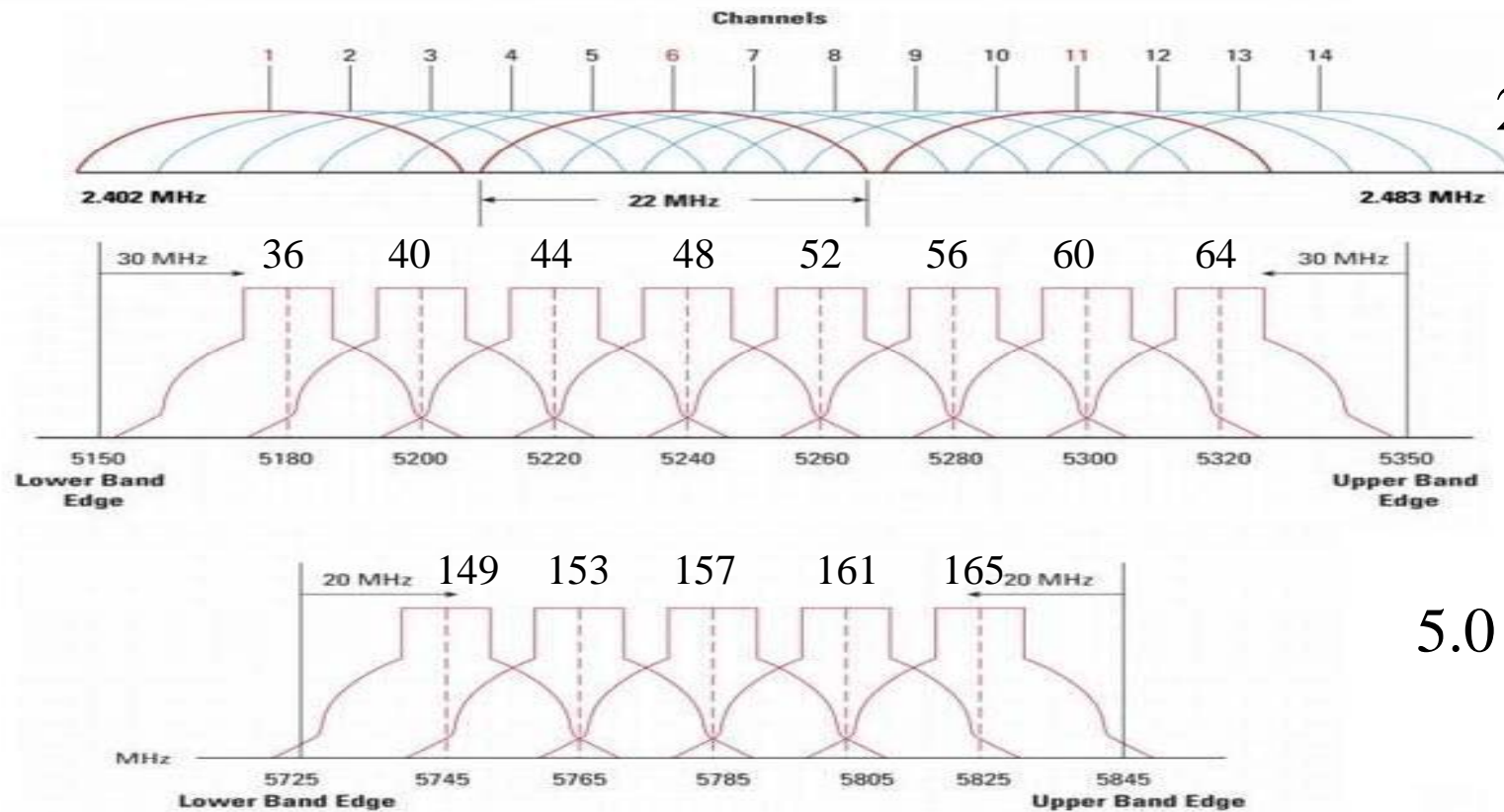
Logical WLAN Architecture cont'd



802.11 Protocol

Standard	Frequency	Speed	Channel	Usable Channel
802.11 a	5 GHz	54 Mbit/s	13	9
802.11b	2.4 GHz	11 Mbit/s	11	3
802.11 g	2.4 GHz	54 Mbit/s	11	3
802.11n	2.4/5 GHz	150Mbit/s	11/13	3/9

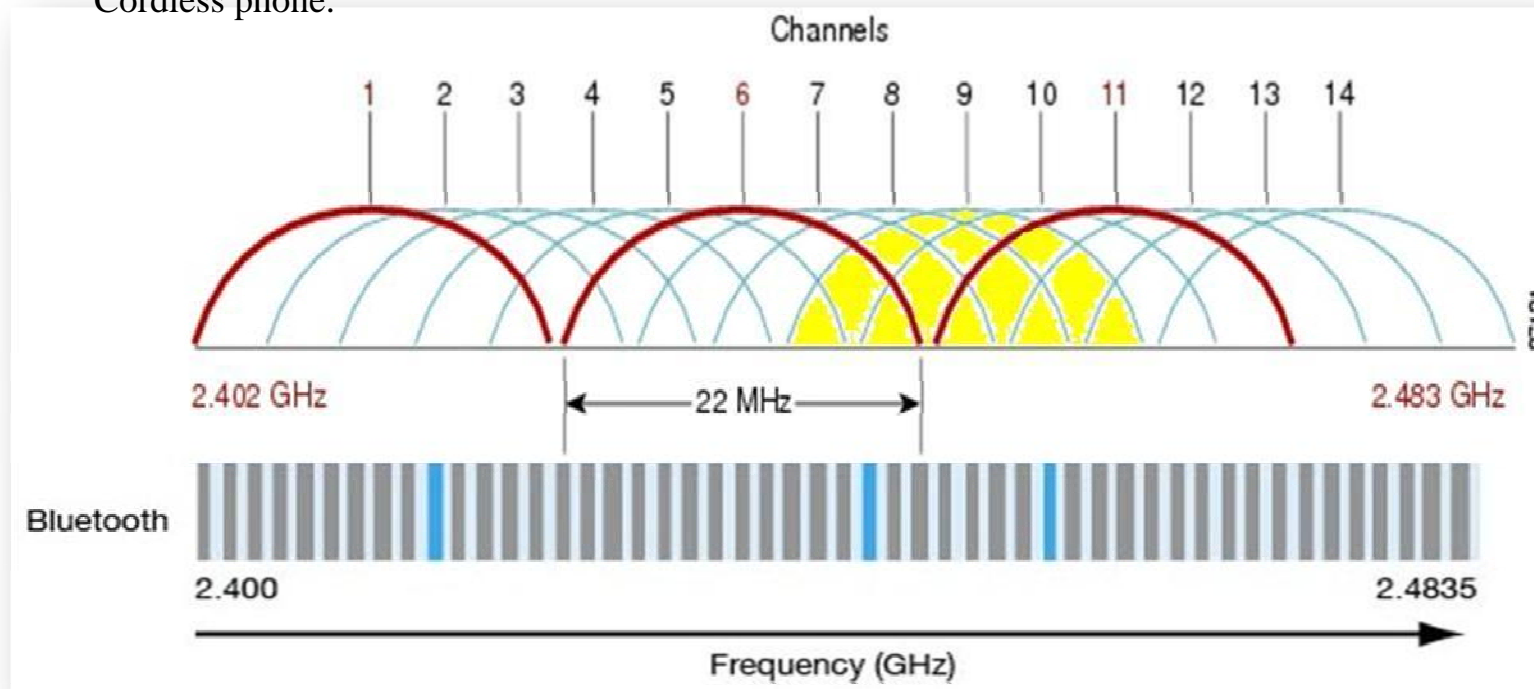
Spectrum



http://www.univers-spb.ru/products/cisco/wireless/cisco_aironet_antennas.php

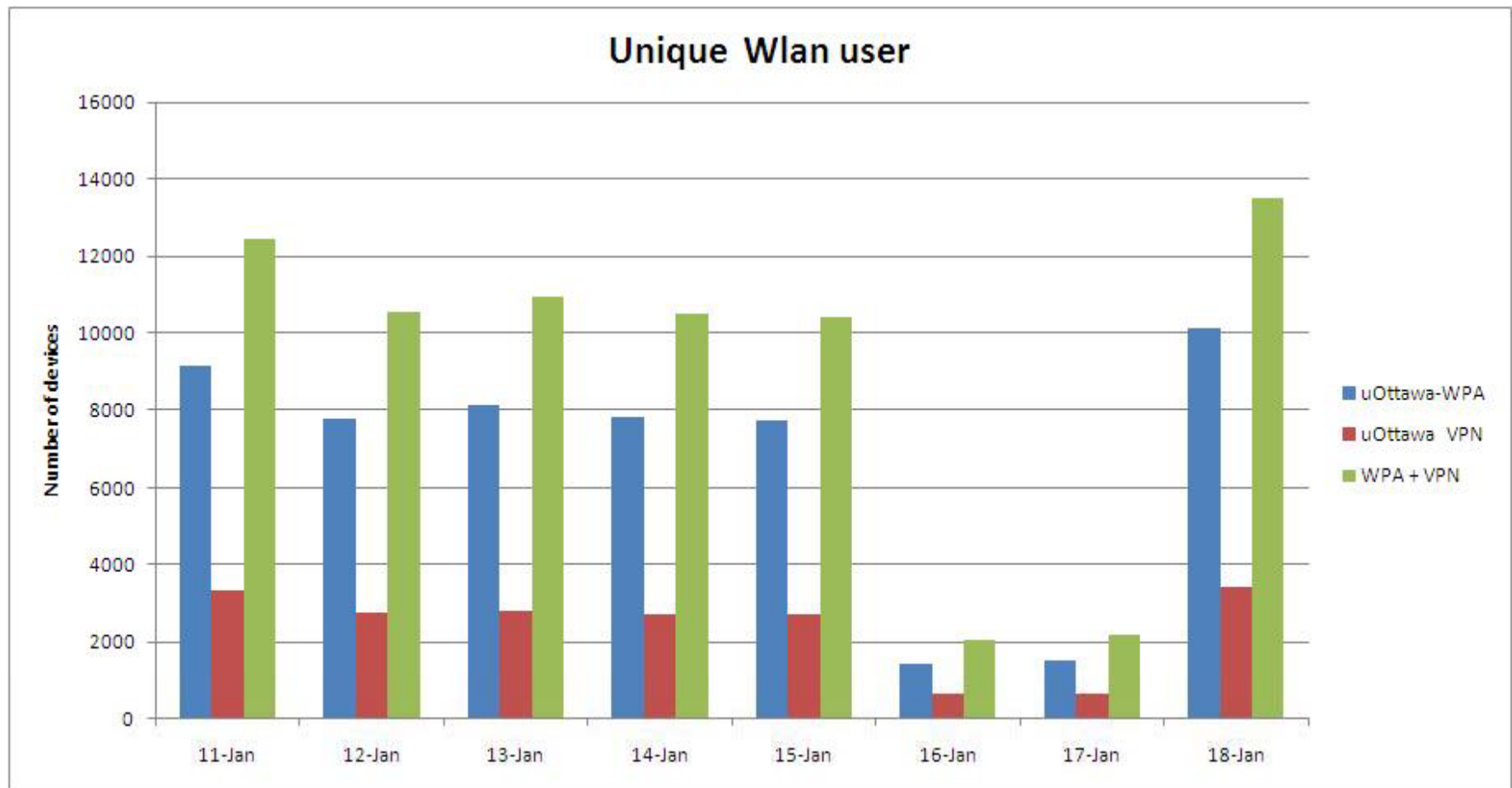
Challenges

Unknown impact of other RF devices on the WLAN – for example, Rogue Access points, any audiovisual equipment that may cause **interference**, Bluetooth devices, Cordless phone.

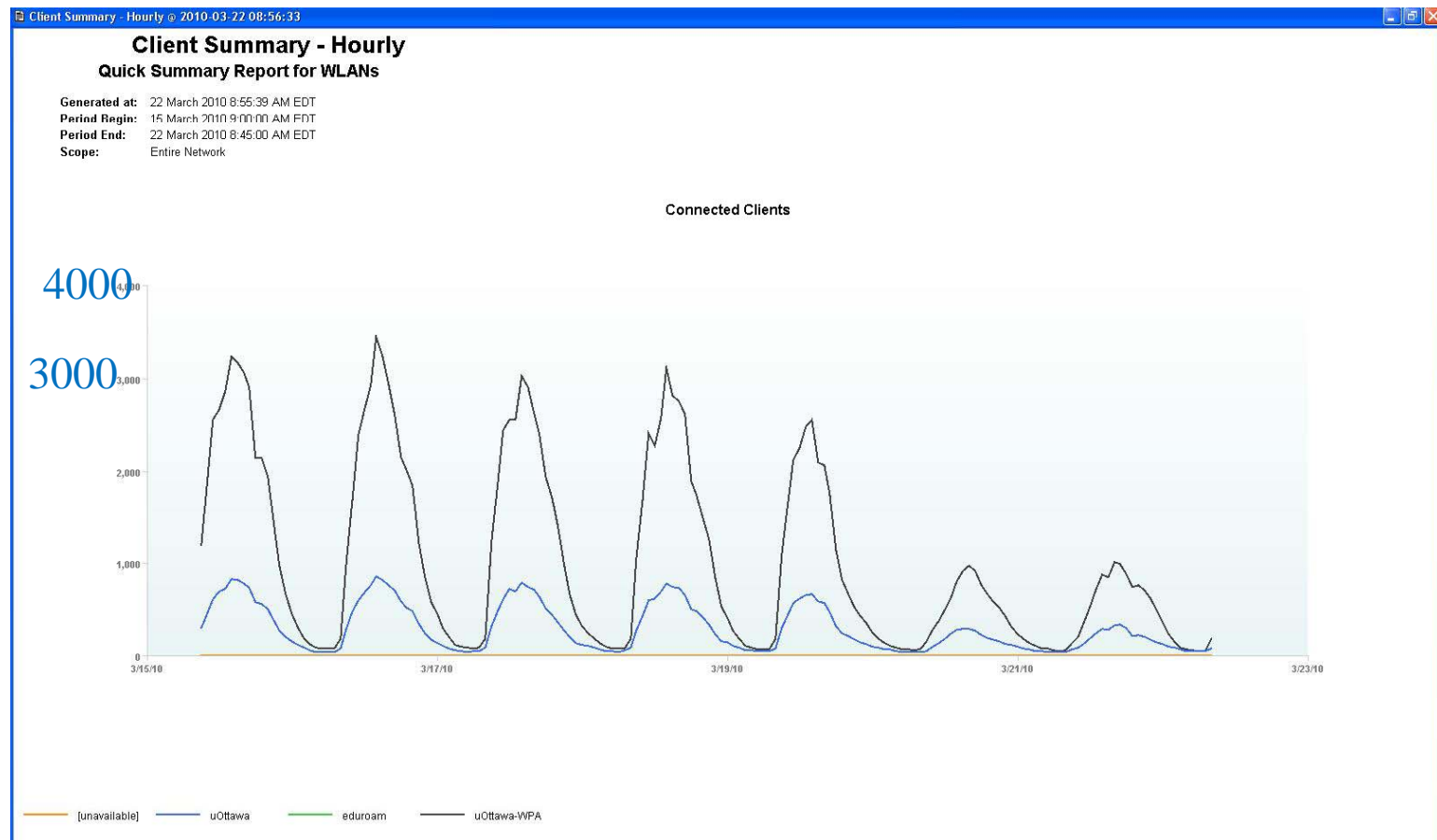


Bluetooth hops over the entire band occupying 79 channels at 1 MHz at a time

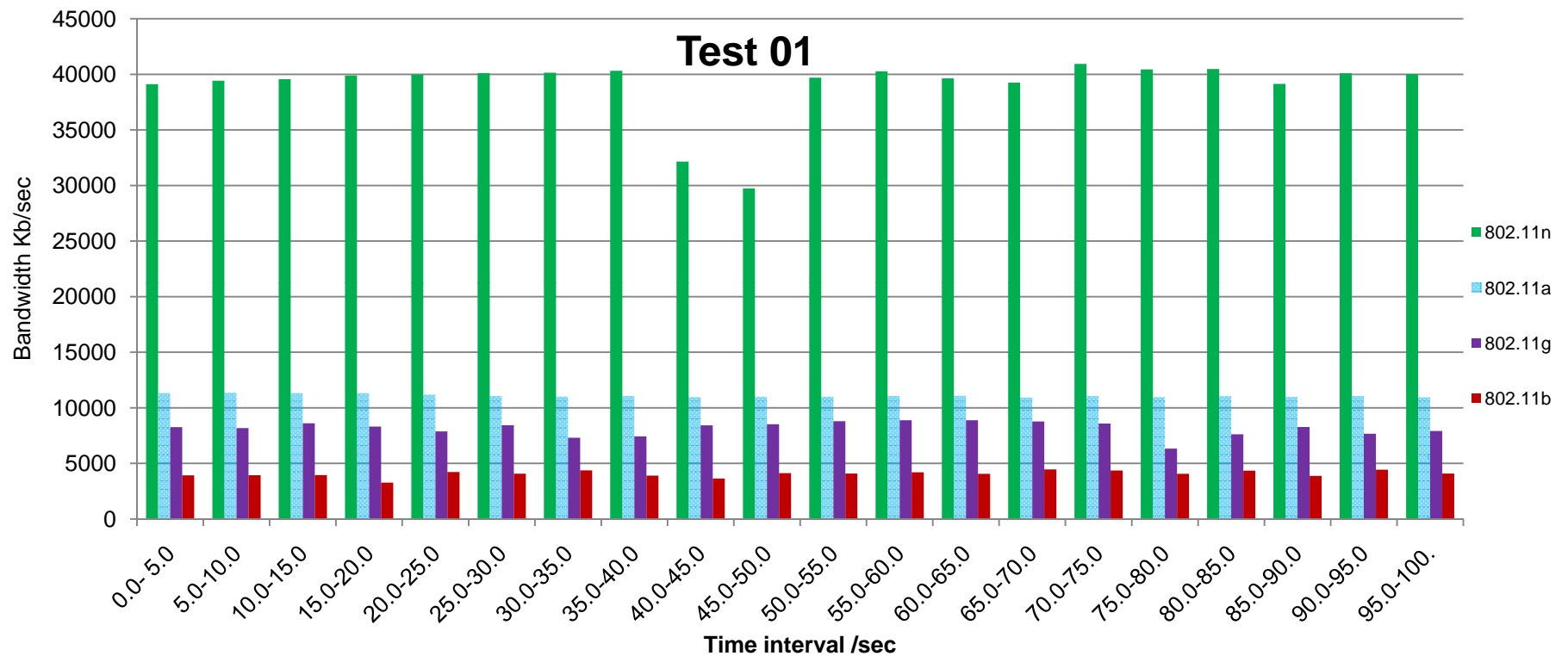
Statistics- Total Number Of Devices On Wlan



Statistics – Total Number Of Users on A Typical Day



Statistics – SITE 802.11n Pilot Project



Where Do We Go From Here

- ❖ Cover all small houses on KED, Laurier, Stewart, and Séraphin-Marion
- ❖ Introduce a new *SSID eduroam*
- ❖ Migrate of VPN users to WPA
- ❖ Deploy wireless in new and renovated buildings
- ❖ Install 802.11n capable APs in high-density areas like classrooms and Libraries
- ❖ Implement a Portal guest access

Open Discussion

- Any questions?

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