

CUDI 2015

REUNIÓN DE PRIMAVERA

21 AL 24 DE ABRIL

Puerto Vallarta, Jal.

Retos Actuales de las Redes Inalámbricas en el Ámbito Académico



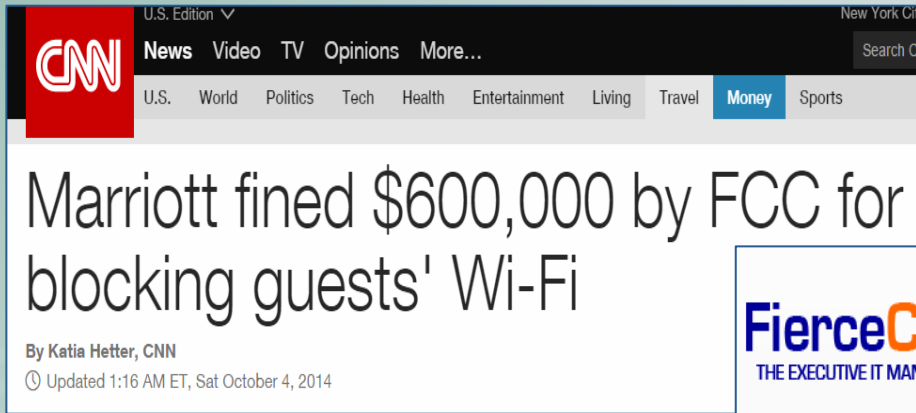
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22 de Abril de 2015



Issues Facing Education CIOs



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Marriott fined \$600,000 by FCC for blocking guests' Wi-Fi

By Katia Hetter, CNN
Updated 1:16 AM ET, Sat October 4, 2014



FierceCIO NEWS TOP
THE EXECUTIVE IT MANAGEMENT BRIEFING

Topics: Networks & Infrastructure

Should you invest in Wave 2 802.11 ac wireless gear this year?

February 2, 2015 | By Paul Mah



CIO Journal.

CIO Report | Consumerization | Big Data | Cloud | Talent & Management | Security

March 18, 2015, 6:00 PM ET

Securing Internet-connected Devices Makes This CIO 'Nauseous'

Your Most Strategic Asset is The Network

- Best possible student learning environment
- Support the instructional needs of faculty and staff
- Online assessment, 1:1, BYOD, flipped classroom, digital textbooks, personalized learning

Top 10 Strategic Issues for 2015



Gartner[®]

- Mobile
- Big Data
- Digital Assessment
- Social Learning



EDUCAUSE

- Mobile, cloud, digital security
- Optimizing the use of technology in teaching
- Flexible IT architecture
- Balancing security with openness

Our Topics for Today...

- The shift from wireless as convenience to *essential*
- Core Issues in IT Today
- Key Considerations for Education Networks
- Wireless LANs – Key Requirements Today

The Shift from Wireless as Convenience to *Essential*

- Essentially *all* users and *all* applications on *every* campus - *everywhere*
 - All *applications* - data, voice, video (including streaming)
 - All *users*
 - All *devices*
 - Application awareness (depending upon policy)
 - Even “consumer”-grade services, like Apple’s Bonjour
- The focus is now on *capacity*, not throughput alone
 - Scalability, driven by BYOD demands
 - Flexible deployment options are *essential* - scalability
 - Management capabilities, especially *unified*, are essential to WLAN success
 - Next up: *analytics*



Core – and Universal – IT Constraints



Management

- Operations
- Network
- Enterprise



Cost Control

- Budgetary constraints
- Staff productivity



Security (*no compromise*)

- Physical
- Network
- Information



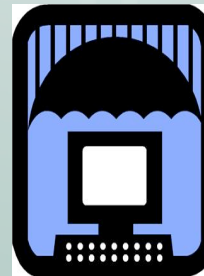
Enabling New Applications/Services

- While supporting legacy
- Time-bounded



Growth/ Scalability

- New apps



High Availability

- Reliability/Integrity
- Risk management

Education IT: Key Considerations

Device and User Proliferation

- Handsets
- Notebooks
- Tablets
- BYOD/CoIT
- Users with *multiple* devices
- Very high demand
- Wireless/mobility



Constituencies and Applications

- Staff, student, and guest use
- *All applications* – extreme diversity
 - Information, communications, online testing, *everything...*
- Social networks, media access
- Availability – anytime, anywhere
- Flexibility



Traffic and Coverage

- Multimedia, streaming, etc.
- Video surveillance; security/tracking
- Online textbooks and testing
- *Campus-wide*
Classrooms, labs, dorms, common areas, outdoors... Everywhere!

WLANs – Key Requirements

Performance

Throughput
Time-Bounded

Reliability

Integrity
Fault-Tolerance
Spectral Analysis

Scalability

Growth
Coverage
Non-Disruptive

Flexibility

What's Next?

Security

Upper-Layer
Firewall
IDS/IPS

Minimize TCO

Substitute CapEx
for OpEx

Management

Unified Wired/Wireless
Analytics

Capacity

BYOD/CoIT
Throughput
Rich Media
Application-Awareness

Policy

Identity Management
Guest Access
Easy Onboarding
Service Discovery and Access

Application
Awareness

Automated Performance
Optimization

Location
and Tracking

Location-based
services, etc.

Why 802.11ac?

Improved Performance

- Rate
- Range
- Reliability
- Capacity

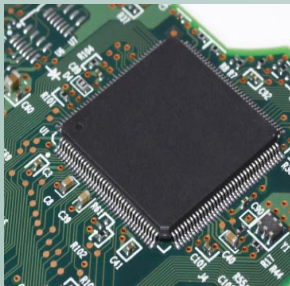


Dense
Deployments



Improved Price/Performance

- *Much*-improved performance, at
- Same or lower price



The New Technology Base

- Through 2018 – and beyond

Dealing With Congestion

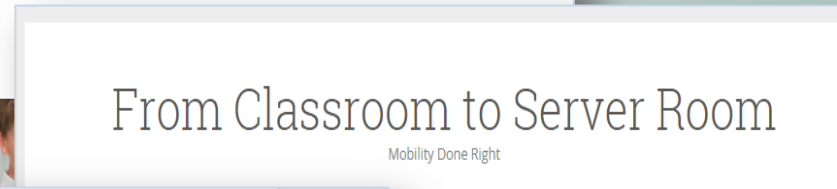
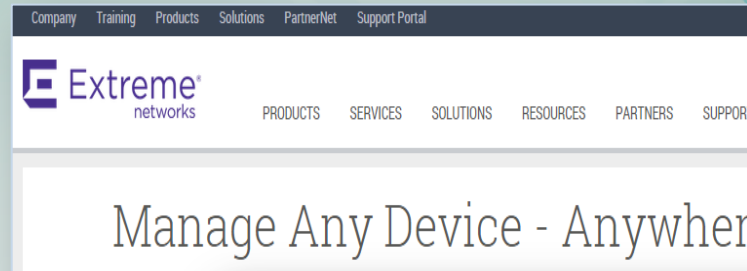
- Some protection from basic technologies
 - Spread-spectrum (wideband)
 - MIMO (spatial multiplexing)
- And from regulation (power, channels, antennas, etc.)
- Some management features help
 - Class of service, quality of service
 - Spectral monitoring/analysis
 - Reporting and analytics
- Using more channels – especially at 5 GHz. (802.11ac)
- Adding more APs
 - Dense deployments
- But there is no magic here – monitor, monitor, monitor!
 - Some devices (like cameras) consume enormous amounts of airtime
 - Future deployments of unlicensed LTE (and etc.)

Conclusions – Best Practices

- **Education will remain the *most demanding* venue for networks for the foreseeable future**
 - All users, all devices, all applications, increasing demands from time-bounded applications and IoT
- **But good solutions exist, today:**
 - 802.11ac – capacity and more
 - Dense deployments
 - Unified management (including wire) and analytics
- **Costs can be controlled**
 - Improving productivity is key
 - Focus on OpEx – use CapEx to improve productivity of operations staffs
- **IoT represents new demand – but management to the rescue**
- **Congestion is a serious challenge**
 - Again – management and analytics, down to the PHY (spectral analysis)
 - Class of service/quality of service (CoS/QoS)

Education Industry Resources

- **Higher Education and K-12 Solution Pages**
- extremenetworks.com/k12
- extremenetworks.com/higher-ed



Powerful Network Analytics Improve Education

Extreme Networks' Purview software provides meaningful analytics across the entire education infrastructure. The detailed network usage data provides insight into how network, application, and bandwidth resources are used throughout the campus or district for better learning.

Superintendent Curriculum Director

- Thoroughly understand and classroom analysis
- Relate technical performance
- Compare actual expected use
- Identify allowed accessed by of day
- Collect data
- Monitor digital
- Monitor for a
- Track learning
- Insure proper during online Core State St
- Monitor usage restricted we

Treasurer/CFO

Going Beyond The Social Campus

Higher education CIOs today stand at a crossroad; embrace stakeholder participation in technology decisions or risk becoming marginalized.

DOWNLOAD THE WHITE PAPER

Wireless Convergent Classroom High Performance Computing