

Securing a campus WLAN

By

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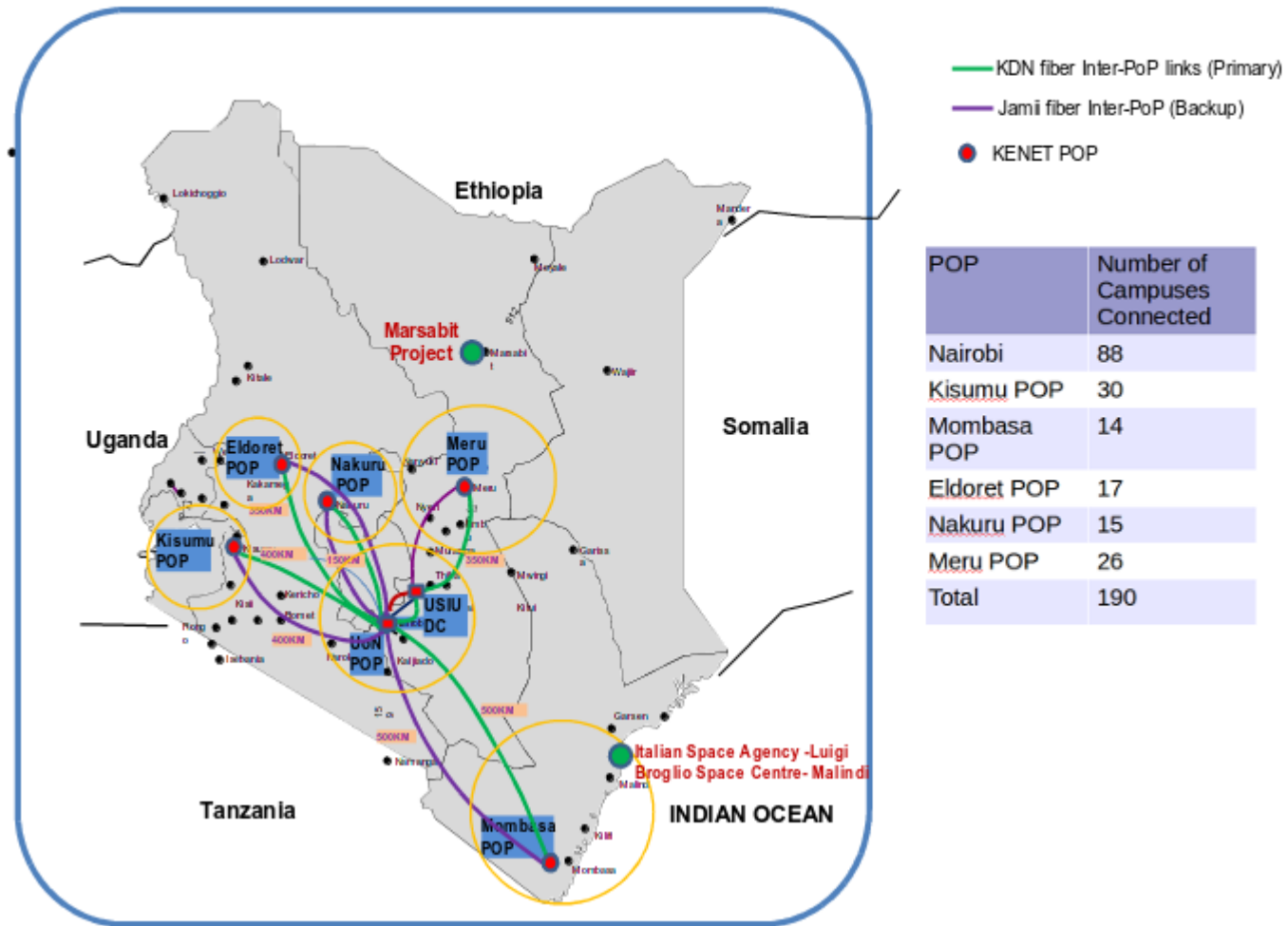
Kenya Education Network (KENET)

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Who is KENET?

- Kenyan NREN
- High Speed broadband services
 - Institutions of higher learning
 - Research centers
 - Schools
 - Government Institutes in Education etc

KENET Network Coverage



Shared Services

- **Mail filtering**
- **Campus Network Advisory Services**
- **Virtual Private Network (VPN) Services**
- **Domain Services**
- **Webhosting**
- **Training and Capacity Building**

Research Services

Video and Web Conferencing

Special Interest Groups (SIGs)

Travel Grants

Access To Grid Computing

- KENET CA – offering certificates

- KENET IdP

eduroam

Deploying a Campus WLAN

Infrastructure

- Good Campus LAN design practices to handle the WLAN
- LAN segmentation - influences QoS and also security

Power

- PoE to power the access points
- Power to charge laptops and mobile devices

Bandwidth

- Does your institution have sufficient bandwidth? How about distribution capacity – ties to infrastructure
- Bandwidth requirements increase with deployment of wireless devices

Where to deploy access points

- A site survey is done to determine where students gather
- Including social areas, Lecture halls, library, hostels etc

Monitoring

- Fault detection
- Traffic load on the link

Deploying a Campus WLAN

Light weight vs Stand Alone access points

•Light weight access points are access points that have central management unlike stand alone access points that you have to configure each individually.

Advantages of Light weight access points.

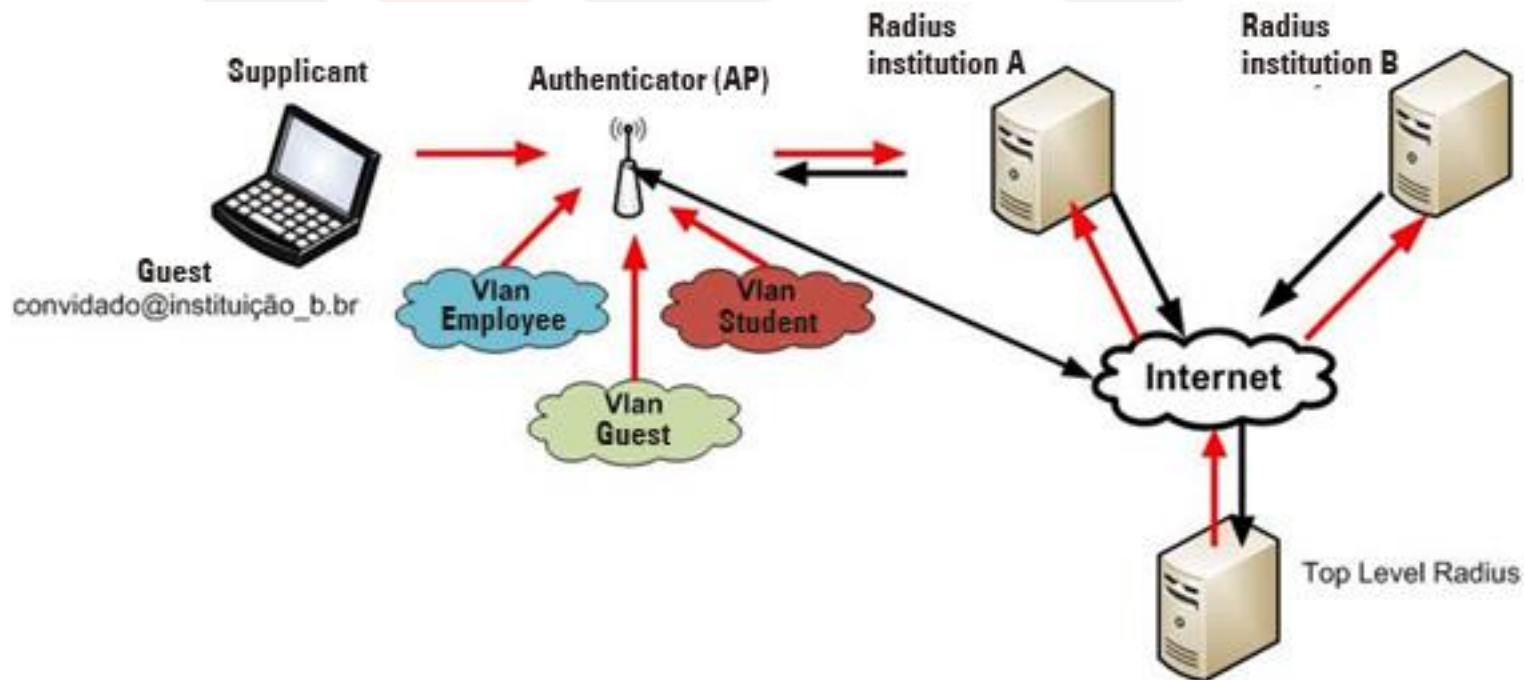
- Centralized Management of all access points
- Centralized Radio Management for all access points
- Load balancing
- Scalability
- Ease of upgrade

Access Point features

- VLANs support IEEE 802.1q
- IEEE 802.1x
- Multiple SSIDs
- Ports PoE Gigabit Ethernet

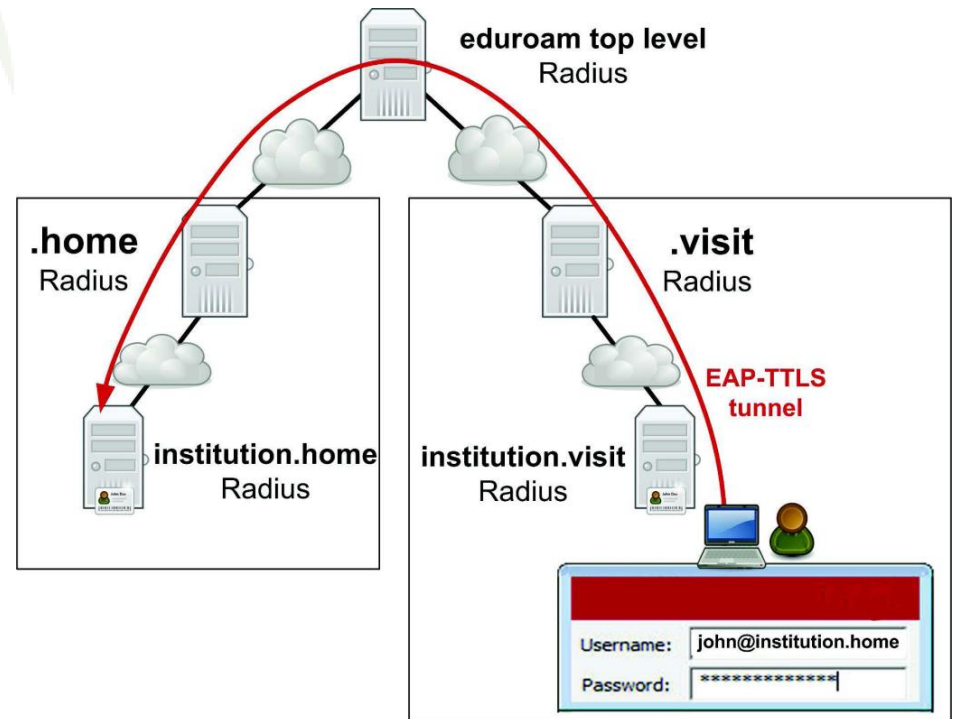
Deploying a Campus WLAN

802.1x



What is eduroam?

- eduroam is a service enabling students and researchers access a secure Wi-Fi when they travel to other eduroam service provider institutions
- Leverage on 802.1x, adds roaming functionality
- Intra-NREN roaming
- Inter-NREN roaming



eduroam Projects

Unified WLAN Solutions

2013

- Cisco Solution
- 10 campuses

2014

- Hp Solution
- 9 campuses

2016

- Unify Solution
- 7 campuses

eduroam Requirements

RADIUS Server

User Database

End Points/Access Points

eduroam

Policies and practice

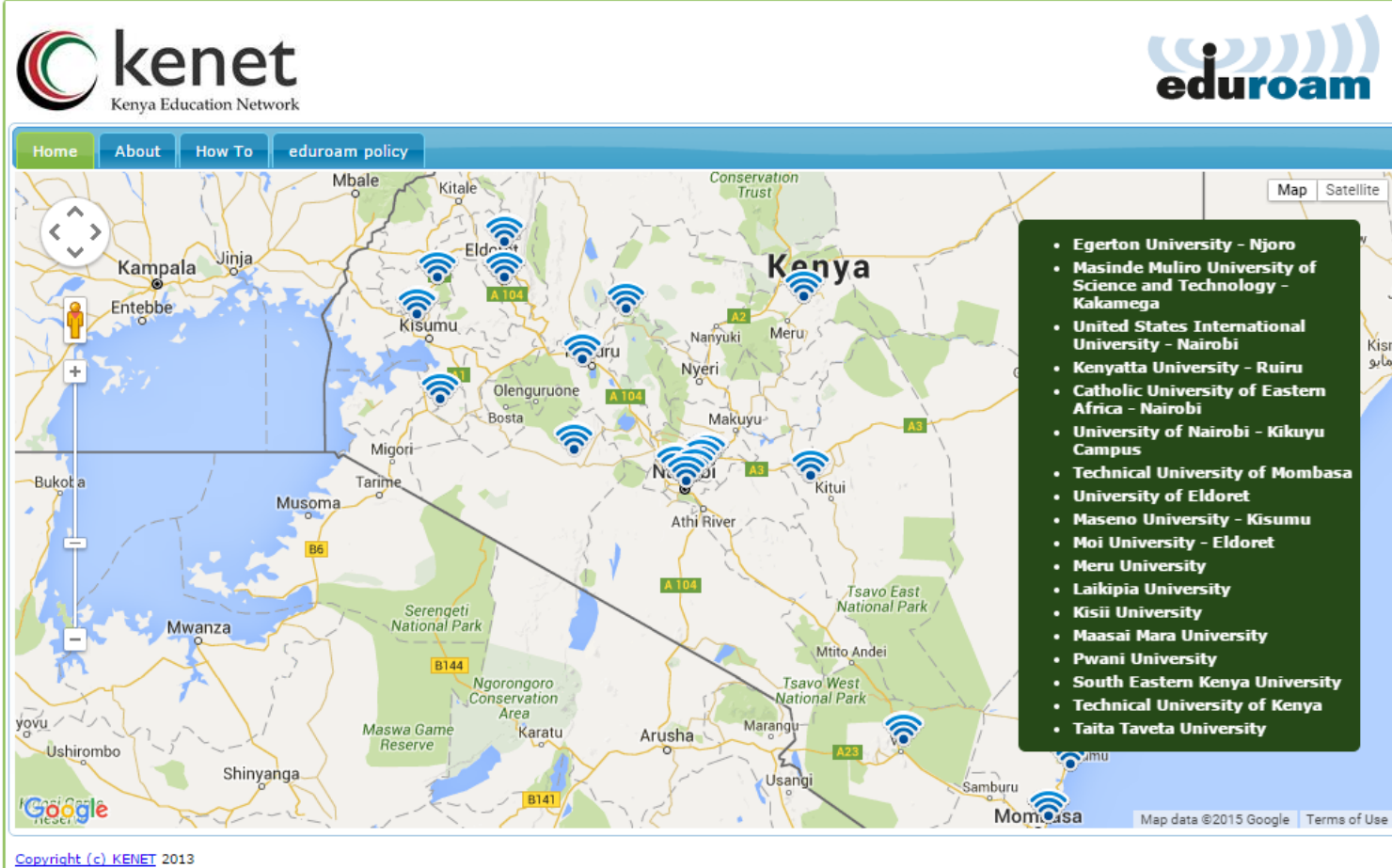
- Guide implementations
- Acceptable User Policy

Challenges faced

- Physical security of APs
- Licensing for controller
- Updating the database
- for those institutions with no user dB
- Client device configuration for eduroam
- Dynamic institutional campus environments

eduroam in Kenya

<http://eduroam.ac.ke/>



kenet
Kenya Education Network

eduroam

Home About How To eduroam policy

- Egerton University - Njoro
- Masinde Muliro University of Science and Technology - Kakamega
- United States International University - Nairobi
- Kenyatta University - Ruiru
- Catholic University of Eastern Africa - Nairobi
- University of Nairobi - Kikuyu Campus
- Technical University of Mombasa
- University of Eldoret
- Maseno University - Kisumu
- Moi University - Eldoret
- Meru University
- Laikipia University
- Kisii University
- Maasai Mara University
- Pwani University
- South Eastern Kenya University
- Technical University of Kenya
- Taita Taveta University

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QUESTIONS
And
Answers

*Transforming education
through ICT*

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