

# Benefits and Challenges of Education Roaming (eduroam) to ZAMREN Member Institutions

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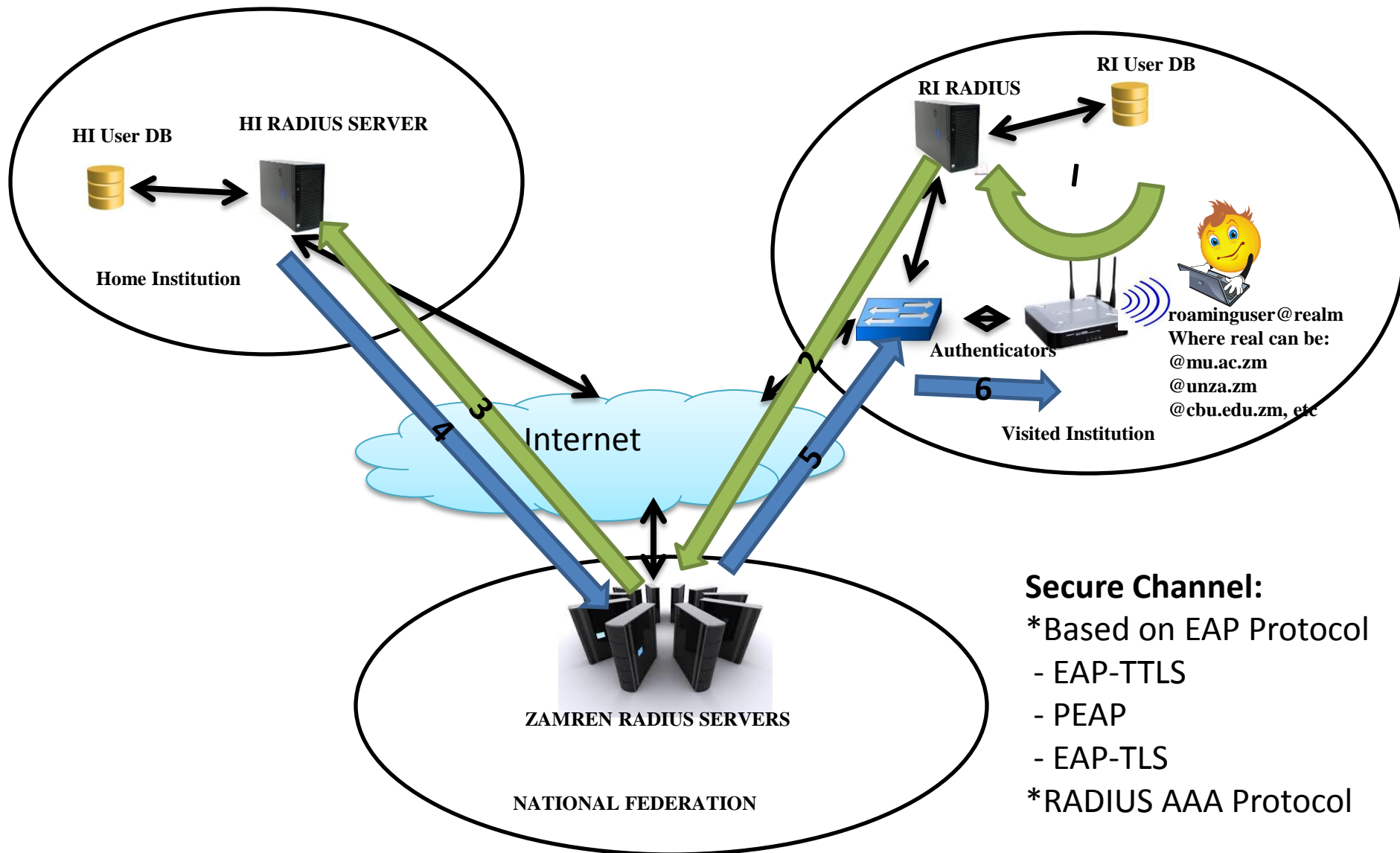
# Introduction

- Eduroam refers to **EDU**educational **ROAM**ing.
- Provide secure wireless access to users across the world in eduroam enable education and research institutions.
- Connect once use everywhere

# Intro cont'

- Zambia Research and Education Network (ZAMREN) -ISP for education and research institutions in Zambia.
- Aim is to bring down the cost of internet bandwidth to research centres and provide ICT services not supported by commercial ISP

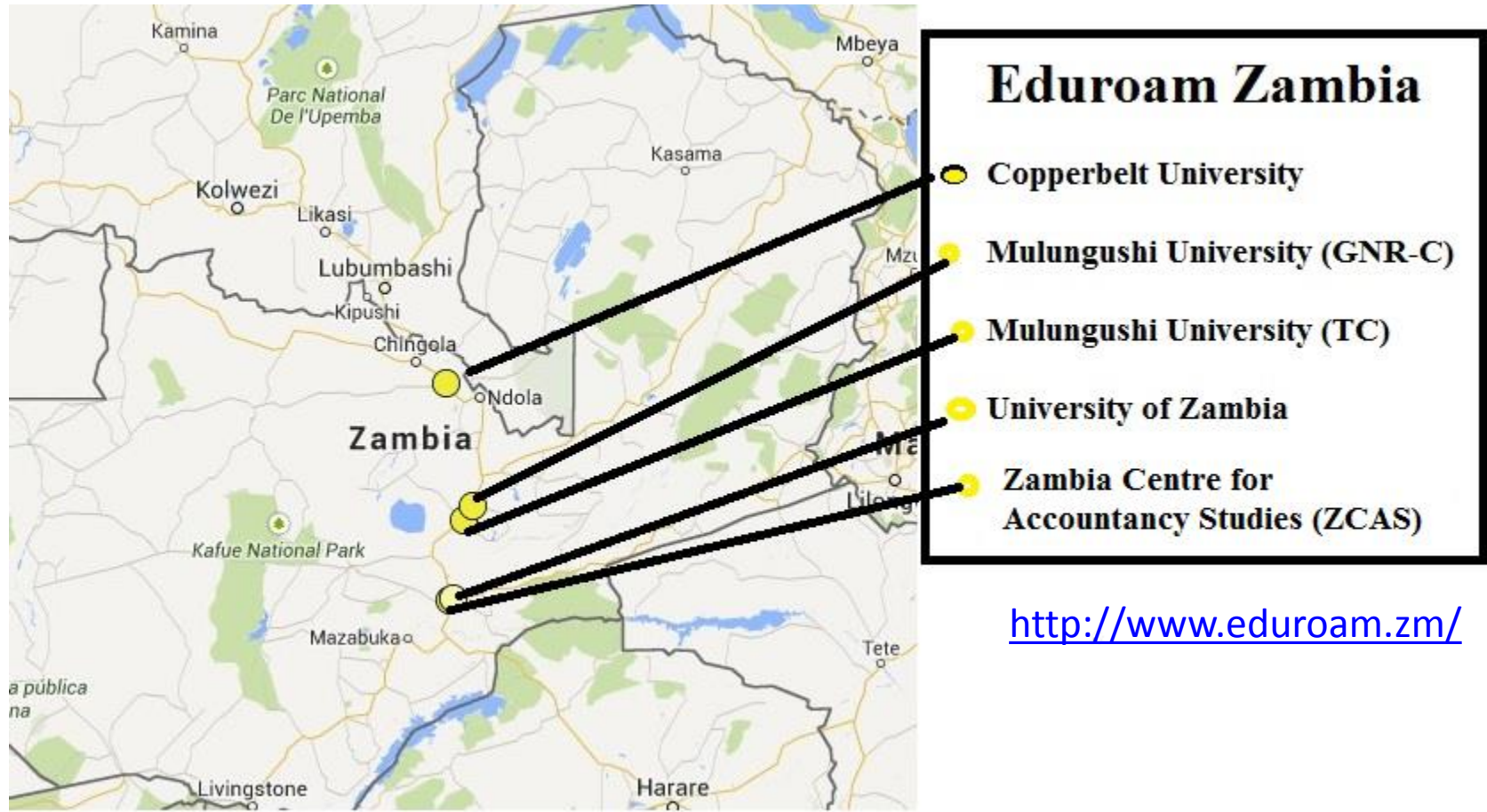
# How does eduroam work?



## Secure Channel:

- \*Based on EAP Protocol
  - EAP-TTLS
  - PEAP
  - EAP-TLS
- \*RADIUS AAA Protocol

# Current ZAMREN Member Institutions with eduroam enable



# Benefits of eduroam

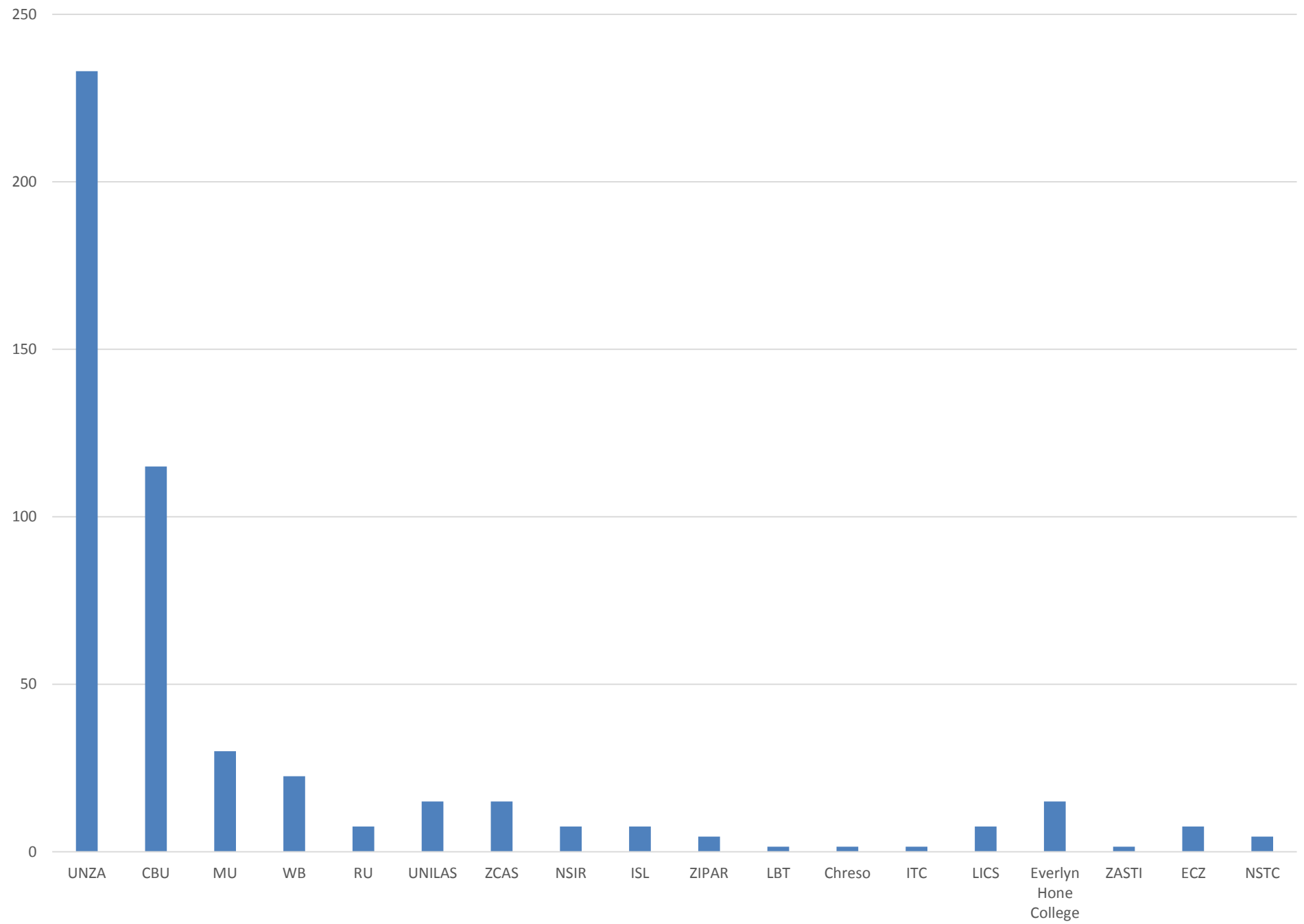
- Secure way of WLAN communication
- Freedom and free of access
- Connect once and use everywhere
- Reduce IT staff workload

# Challenges of Eduroam Usage in ZAMREN Member Institutions

- Few institutions currently connected (limit accessibility to only 4 institutions)
- Harmonization of ICT policies
- Low bandwidth
- User awareness and security concerns
- Single point of failure in the authentication hierarchy
- Rogue access point with malicious intention
- IT personnel challenges



# Bandwidth



# Services of eduroam users based on survey (118 respondents)

<b>Google search</b>			<b>50%</b>
<b>Wikipedia</b>			<b>31%</b>
<b>Facebook or twitter or other social sites</b>			<b>33%</b>
<b>Research and learning (eg, Google scholar)</b>			<b>58%</b>
<b>News and blogs</b>			<b>34%</b>
<b>Torrents or FTP</b>			<b>7%</b>
<b>All of the above</b>			<b>29%</b>
<b>None of the above</b>			<b>5%</b>

# Summary of challenges based on survey

<b>Security concerns</b>	<b>21%</b>
Eduroam not working in our institution	23%
Eduroam not working in institutions visited	10%
Low bandwidth in institutions offering Eduroam	39%
Authentication problems	45%
Small coverage area	36%
Laptop failing to connect to Eduroam, despite being able to connect to other network	47%

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# Conclusion and recommendation

- Eduroam as a service is very beneficial to education and research institution as it promotes freedom and free of access
- However challenges still exists for example small coverage areas which can be improved by increasing the number of access points, but this could lead to overwhelming the already smaller bandwidth in some institutions.
- Low bandwidth can be improved with caching some frequently visited data (sites) at ZAMREN
- With Fibre networks being installed around Africa (UbuntuNet, 2014) hope that the internet cost will drop in a near future.
- Training of IT personnel is recommended which is already happening with ZAMREN as coordinating centre.
- User awareness is important by all parties involved

# References

- UbuntuNet, (2014) 'Intra-Africa Optical Fibre Network'  
[http://www.ubuntunet.net/sites/default/files/Intra-Africa\\_Fibre\\_Map\\_v6.pdf](http://www.ubuntunet.net/sites/default/files/Intra-Africa_Fibre_Map_v6.pdf) [accessed on 05/11/2014]

- Thank you for your time
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