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**JANET Roaming Futures**  
Workshop 38

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**Background**

- JANET Roaming Service – a proxied RADIUS authentication system
- Use your University account to log into network at other sites..worldwide
- NREN representation of 'eduroam'


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**eduroam – where to roam?**



- not just Europe!
- Add in Australia, Canada, Japan, Hong Kong, China, New Zealand, Taiwan

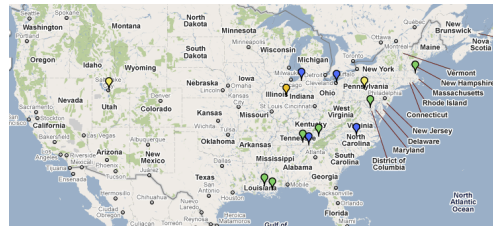


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**...and now more!**

- USA and Papua New Guinea



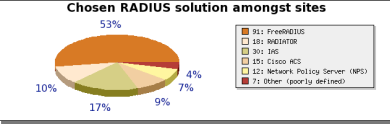
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**Recent JANET Roaming history**

- 18 more organisations since last year
- Over 16000 unique clients per month

**Chosen RADIUS solution amongst sites**



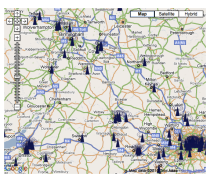
Solution	Percentage
81: FreeRADIUS	53%
81: RADIUS	10%
30: IIS	17%
82: Cisco ACS	9%
82: Network Policy Server (NPS)	7%
?: Other (poorly defined)	4%

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**New JRS maps**

Google map technology



Compliance	Service	Wireless Settings	802.1x offered	802.1x priority	Application/traffic priority	Port allocation
Visited working towards Home	JRS with SSID: eGoran	WPA/WPA2	0	No	No	No

Site Name	Wireless APs
University of Manchester - Kilburn Building	8
University of Manchester - University Place	27
University of Manchester - John Rylands University Library	25
University of Manchester - Deansgate House	5
University of Manchester - Wilton Institute	1

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## JRS development work

- Location context – multiple sites
  - Previously just one postcode
  - Now each location can be mapped
  - Each location can have differences
- Enhanced home/remote testing

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## Recent JRS development

- ORPS functionality
  - Authorization/Accounting
  - Authorization only
  - Accounting only
  - Client only
- ‘Development ORPS’
- NAGIOS looking glass

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## ‘new for 2010’ – NAGIOS LG

Support server NAGIOS status as of: 2010-03-22 18:55:58, looking at lboro.ac.uk view.

Last Checked	Host	Status Info	Service
2010-03-22 18:51:49	lboro.ac.uk	PING OK - Packet loss = 0%, RTA = 9.85 ms	PING check bopply.liboro.ac.uk
2010-03-22 18:53:03	lboro.ac.uk	PING OK - Packet loss = 0%, RTA = 10.89 ms	PING check prelect.liboro.ac.uk
2010-03-22 18:54:19	lboro.ac.uk	PING OK - Packet loss = 0%, RTA = 9.90 ms	PING check purlieus.liboro.ac.uk
2010-03-22 18:55:34	lboro.ac.uk	PING OK - Packet loss = 0%, RTA = 9.94 ms	PING check purview.liboro.ac.uk
2010-03-22 18:51:49	lboro.ac.uk	PING OK - Packet loss = 0%, RTA = 9.24 ms	PINGv6 check purlieus.liboro.ac.uk
2010-03-22 18:53:05	lboro.ac.uk	PING OK - Packet loss = 0%, RTA = 9.31 ms	PINGv6 check purview.liboro.ac.uk
2010-03-22 18:54:19	lboro.ac.uk	access-accept: 1	check-lboro.ac.uk-NRPS0
2010-03-22 18:55:35	lboro.ac.uk	access-accept: 1	check-lboro.ac.uk-NRPS1
2010-03-22 18:54:50	lboro.ac.uk	access-accept: 4	check-lboro.ac.uk-NRPS2

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## New technical specification?

- Listening to feedback from community
- Current tier system ‘limiting’
- Why no IPv4 NAT if IPv6 offered?
- Why need to provide WPA/TKIP?
- Will be surveying JRS members and soliciting feedback

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## UCISA NG

- JRS working group set up
- Several meetings so far
- List of actions
  - Case studies
  - Publicity
  - Documentation review
  - Information outlets e.g. Twitter

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## su1x

- Work undertaken in partnership with Swansea University and Loughborough University
- Provides a method to provision edu roam on Windows (XP/Vista/7) platform
- All the settings and the certificate!
- Now follows a live demo....

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## GDP12

- Southampton student project.
- Visual representation of JRS events
- JAVA based tool
- Currently works on debug output from NRPS – other members of eduroam interested
- Could be used to view other systems e.g. JVCS

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## GDP12

- A brief demonstration of the tool

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## Proxy .....

- Currently operation is:

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## Proxy.....

Advantages:

- Easy to debug
- Easy to deploy
- Central stats
- IPv4 or IPv6 is down to site not others...
- Firewall/ACLs only link ORPS/NRPS

Disadvantages

- Hierarchical delays
- 'Dead' issue – Status-Server(!)

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## Direct RADIUS

userXXX@siteG.de  
DNS query  
Resolve RADIUS

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## Direct RADIUS

Advantages

- Faster – direct to home!
- No need for National kit

Disadvantages

- Debugging more difficult
- National stats?
- More complex...PKI insurgence
- Open daemon to rest of world

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## DNS operation

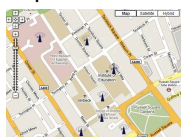
- site.ac.uk has NAPTR record e.g.  
100 10 "s" "x-eduroam:radius.tls" "" \_radsec.\_tcp.site.ac.uk.
- \_radsec.\_tcp.site.ac.uk has SRV record e.g.  
0 0 2083 radius.eduroam.pl.
- RADSec used for transport
- Certificate gives 'membership' to eduroam

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## The RSP

- 'Russell Square Problem'



- 7 organisations
- 670 APs – all 'eduroam'
- Which network are you on?

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## Augmented reality

- Phone knows location (aGPS/GPS)
- Phone can show you a real-time image of your world via camera
- Phone knows where you are facing (if it has a compass)
- Using info from internet it can show you things layered on your view

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## Examples..



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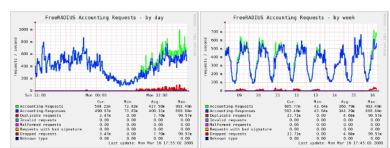
## Augmented reality

- Uses the data in the eduroam database (KML file)
- Layar <http://layar.com/>  
– Android and iPhone
- Wikitude <http://www.wikitude.org/>  
– Android, Symbian and iPhone

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## Statistics - revisited



- Community-led approach?
- Architecture dependency. SNMP? Capable?
- Collector or feed system?
- Storage... IF-MAP?

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## Questions?



- Any questions?
- <https://support.roaming.ja.net>

  
JANET Roaming