

The slide features a dark background with a bokeh effect of colorful lights (red, orange, yellow, green, blue) on the left side. The text is centered in white. The title is at the top, followed by the author's name, the working group name, and the date. The AARNET logo is in the bottom right corner.

# AARNet Enterprise Unified Communications

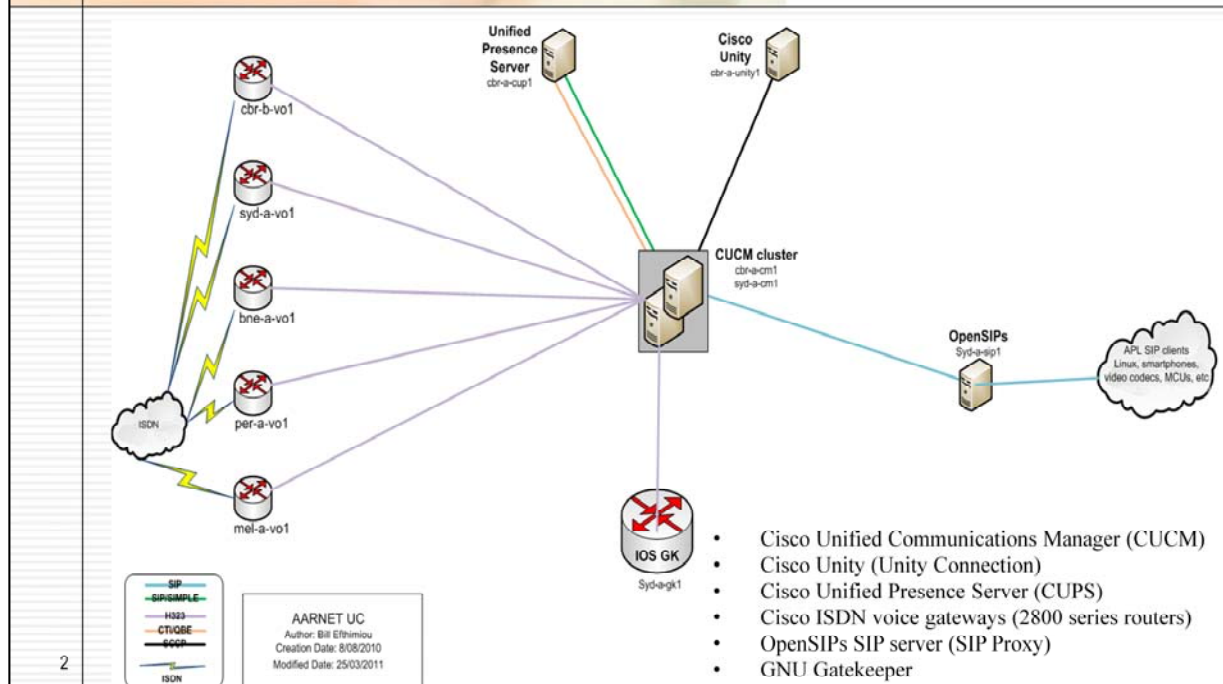
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24 August 2011

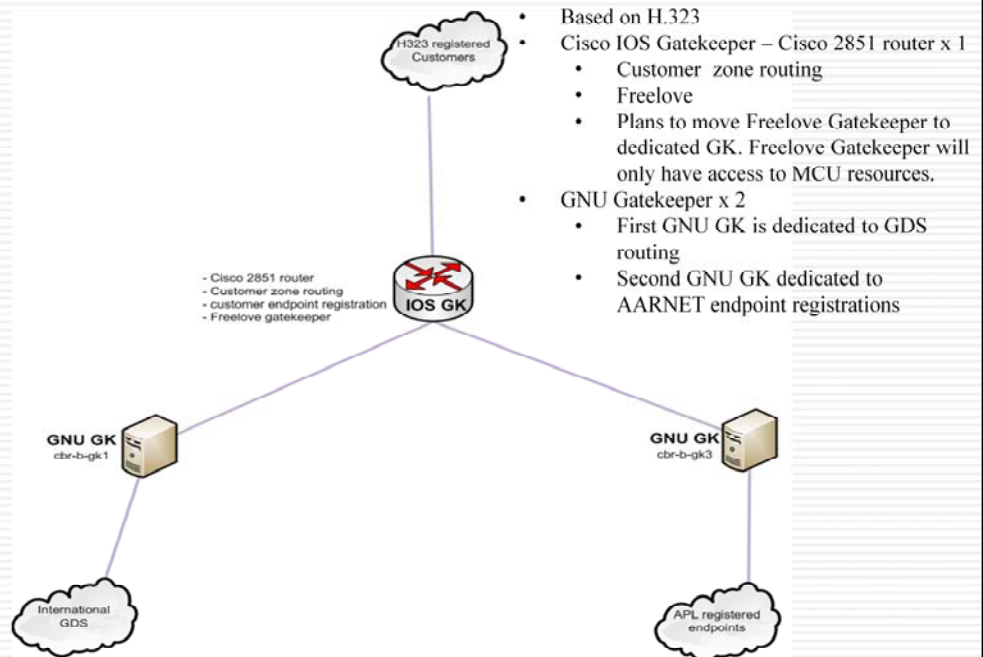


## AARNET Enterprise Unified Communications – Current diagram



1. Based on Cisco Systems Unified Communications solution
2. Dual server cluster redundancy
3. Just completed migrating all end users to new version 8.5.1 cluster.
4. Commercial vendor support (Cisco Systems)
5. Long history of partnership with Cisco and AARNET
6. High level of in house skills
7. SIP support for line and trunk side
8. Mobility Connect (Single Number Reach) using both ISDN gateway and SIP proxy service.
9. Cisco Unity Connection (Unified Voicemail)
10. Cisco Unified Presence Server
11. Wide range of IP Handsets
12. Softclients: CUVA and CUPC. Jabber (beta) on the radar.
13. Least Cost Routing.
14. H.323 signalling to gateway and gatekeeper.
15. SIP signalling to 3<sup>rd</sup> party SIP server (OpenSIPs).
16. mixture of SCCP and SIP signalling to Telephony endpoints.
17. SIP signalling to Presence server.

## AARNET Multimedia architecture



## AARNET Multimedia architecture – AARNET and customer pain points

- H.323 & SIP Protocol Interoperability addressed via MCU
- Firewall NAT border security addressed via AARNET MCU
- No SIP based Business to Business UC audio and video calling - current H.323 Gatekeeper has limitations.
- Call Admission Control enforcement and Rate Limiting management needed
- No way to merge the SIP and H.323 environments.

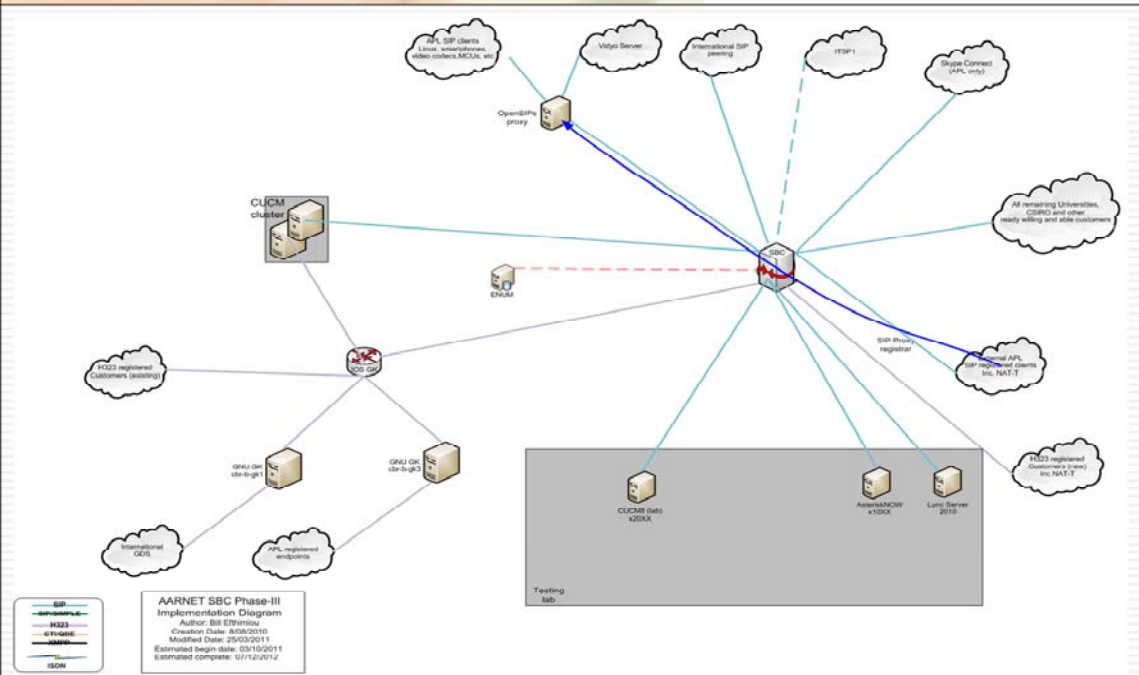
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- H.323 & SIP Protocol Interoperability via MCU Vendor “A” SIP equipment will not function correctly or at all with vendor “B” equipment, despite implementing SIP or H.323. Typical solution is to meeting at the AARNET MCU for a point to point video call.
- Firewall NAT border security- Equipment at Institution “A” is behind a firewall. Equipment at Institution “B” may or may not be behind a firewall. Equipment at “B” fails to place a call to equipment “B” because the required traffic is being blocked at the firewall at “A”. The solution, meeting at the AARNET MCU or make changes to the firewall, or give up.
- Business to Business UC audio and video calling between multiple Institutions- IP-PBX at each Institution wish to make on-net calls to other Institutions. We do not have a SIP solution that will cater for this requirement today. Would require a fully meshed SIP trunking setup with each Institution, which would be uncoordinated without AARNet’s involvement. There would be no mechanism for protocol normalisation. Current H.323 Gatekeeper setup alone, has it’s limitations.
- Call Admission Control enforcement and Rate Limiting- Some links (eg, Adelaide-Darwin) may be congested. We need a way to manage the amount and volume of real time traffic over these links.
- We have no way of merging the SIP and H.323 environments, into one seamless pool of Multimedia endpoints. The signalling protocol should not be a limiting factor.

## AARNET Multimedia architecture – Planned

- Introduce ACME Packet Session Border Controller – Net Net 3820.
- Specifications:
  - Up to 8000 sessions (currently licensed for 1000).
  - 1:1 redundancy.
  - System throughput - 5Gbps.
  - 1,000,000 Local Route Table entries.
  - 4 x SFP media interfaces (using 10/100/1000 Mbps Ethernet UTP).
  - 1 rack unit (4.37 cm H x 43.43 cm W x 48.26 cm D).
  - Dual AC power supplies
  - SIP, H.323 and IWF
  - IPv4, IPv6 and IWF
  - Hosted NAT Traversal
  - ENUM (for dynamic and scalable routing functionality).
  - SIP TLS (available but limited). Full feature to be added as part of roadmap.
  - SRTP to be added as part of future roadmap.
  - Global 24 x 7 technical support.

# AARNET Unified Communications Exchange- In Progress



**AARNET Unified Communications Exchange– In Progress**

**For more information:**

**<https://wiki.aarnet.edu.au/display/UCX/Home>**



**Thank You  
Questions ?**