Infrastructure developments to build on AARNet’s VoIP and Video services

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- Overview
- Enterprise UC Network
- Demonstration
- Beta program
What we have today...

- **H.323 gateways** used for calls to PSTN
- **H.323 gatekeeper** provides call routing and call admission control
- All devices reside AARNet3
- Voice over IP (VoIP) service provides
  - on-net in-dial/out-dial calls between customers
  - Full VoIP and PSTN toll bypass for AARNet staff

VoIP on.net network
Building our UC Infrastructure

- **Cisco Unified Communication Manager 6.1** – newly upgraded from CCM 5, provide central call control and management
  
  - **Benefit**
    - Supports dual-mode devices
    - Supports more phone models, 7965G, 7975G etc
    - Enhanced support on SIP
  
  - **Challenge**
    - Remote upgrading for publish in Canberra
  
- **Cisco Unity** – provide voicemail
  
  - Offered to each employee
  - Access voicemail anywhere, via IP phone, PSTN phone or email
  - Need improve: different domain other than main AD domain and inconsistent username and password
Building our UC Infrastructure (cont’d)

- **Cisco Unified Presence 6.0 (NEW)** – built in May 2009, provide presence for staff to increase productivity
  - Integrated with CUCM, LDAP, Unity, Outlook Calendar (in process)
  - Challenge
    - Need to consider access/Firewall to all integrated servers
    - Security concern about Exchange account access to Calendar information
    - A bit more configuration on CUCM end

- **End user devices and applications**
  - IP phone, mainly 7960/7961

Building our UC Infrastructure (cont’d)

- Cisco Unified Video Advantage
  - Video call capability
  - Rely on cable connection to IP phone and CDP
  - Windows version only, no MAC support
  - Interoperability cross different institutions

- Cisco Unified Personal Communicator (NEW)
  - Benefit: integrated IM/phone/video/presence/voicemail/LDAP
  - Benefit: click-to-dial from outlook
  - Benefit: Windows and MAC version
  - Weak: can’t set call forwarding
Building our UC Infrastructure (cont’d)

- Weak: interoperation with other SIP product
  - SIP client on mobile devices – SIPPHONE on iPhone
    - SIP client on iPhone
    - Configured to register with CUCM
    - Make/receive phone calls as from desktop phone on WIFI
  - Issues:
    - authentication failure caused by CUCM user settings
    - One way audio behind NAT: solved with STUN server
    - Not a free application

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Demo

Scenario
1. CUPC and iPhone are connecting to Eduroam, then VPN to AARNet 3 network;
2. Both of them register with CUCM;
3. Calls initial from CUPC and iPhone to conference on MCU.

Overview

Enterprise UC Network

Demonstration

Beta program
SIP and ENUM

Session Initial Protocol (SIP)
- Peer-to-peer signaling protocol
- Application layer protocol
- Integrated services
- Simpler protocol and more portable on different devices
- Survey shows interests

ENUM
- E.164 number mapping
- Example, +6112345678 = 8.7.6.5.4.3.2.1.1.6.e164.arpa
- One entry for several services
  - SIP
  - Email
  - PSTN
  - Mobile
  - Web
  - Many more

Our thoughts on SIP/ENUM developments

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<td>SIP server</td>
<td>Build Internal SIP server with RADIUS authentication</td>
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<td>Internal Trial</td>
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<td>AARNet Internal SIP/ENUM trial</td>
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<td>Mobile devices</td>
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<td>Test SIP on mobile devices, aiming on iPhone, HTC, Blackberry, Palm Centro, Android</td>
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<td>Small Scale Trial</td>
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<td>External trial with 1 customer per state</td>
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<td>Full Scale Trial</td>
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<td>Full scale Trial offered</td>
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What services do you want to see across a SIP platform?

- Skype-SIP?
- End to End video?
- Mobile eduroam+wifi+VoIP
- Others?

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