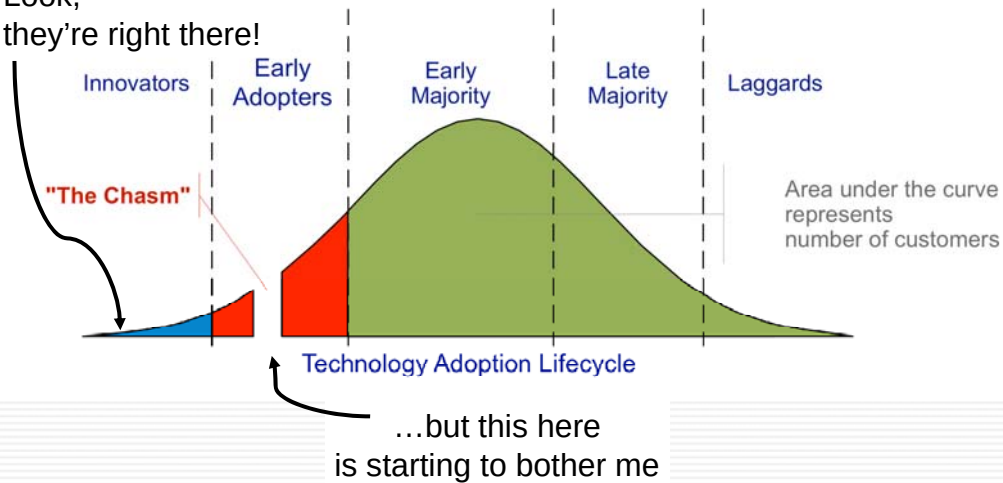




eResearch @ AARNet
Traditionally has strong interaction with scientific Power Users • Astronomers (eVLBI, SKA – lightpaths) • HE Physicists (LHC – lightpaths, grid access) • Biophysics / chemistry (grid access, distributed storage) and we want to keep it that way! ...but we have to keep reminding ourselves: these are top 5% percentile power users

That's them now!

Look,
they're right there!



Two examples of such chasm-scaling efforts:

- CloudStor
- AARNetAnywhere

CloudStor/FileSender

<http://www.filesender.org/>

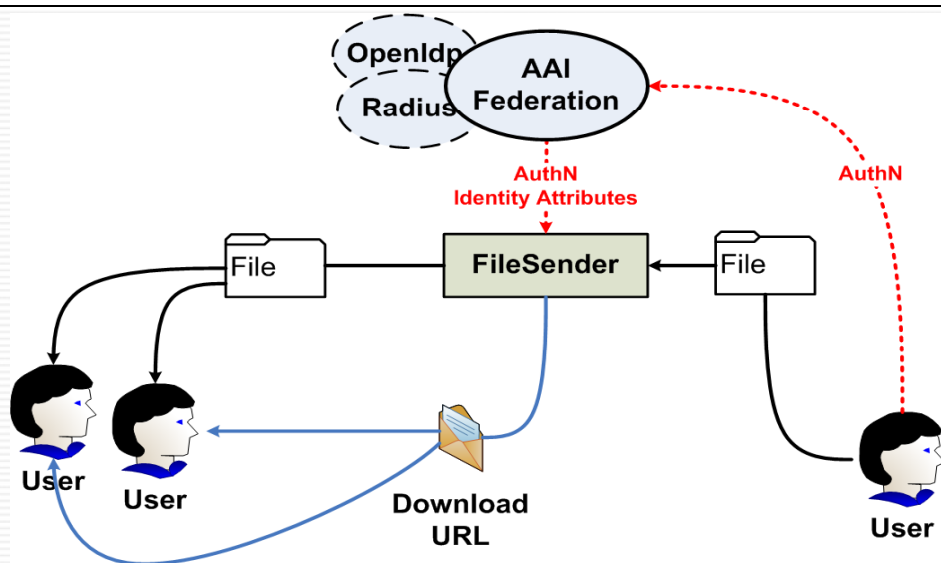
history

- Jul. 2007
 - CSC presents ePoste Restante
- Sep. 2008:
 - CSC: ePoste
 - HEAnet: Bitey
 - SWITCH: DocExchange
 - UNINETT: FileSender-pre
- AARNet: Large Inbox (TAFE project)
- Jan 2009
 - HEAnet, UNINETT, AARNet start FileSender project

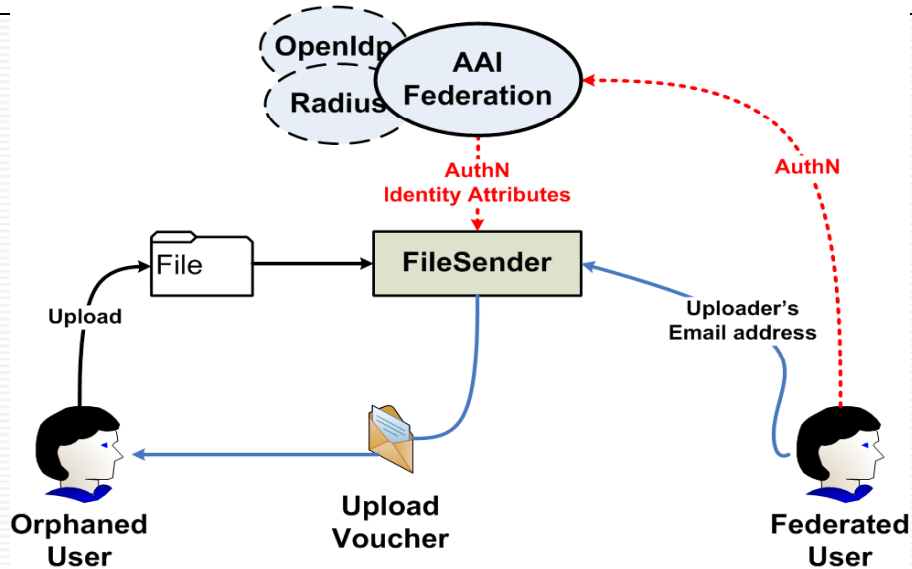
FileSender

- Open Source project
<http://www.filesender.org/>
 - BSD license
- Funded by HEAnet, UNINETT, AARNet
- SURFnet new 2010 contributors! Just signed...
 - Code lead: Chris Richter (RicoShae, AU)
 - Code contributed by StreamTech (security audit fixes)
- additional coder from SURFnet committed
- Project coordinator: Jan Meijer, UNINETT

data sharing functionality



non-federated users: voucher



requirements

- Client
 - Browser, Flash
 - Gears for > 2 GB transfers
- Server
 - 64 bit Linux + 64 bit hardware (downloads!)
 - SimpleSAMLphp 1.5.1
 - PHP 5.2.10+
 - PostgreSQL 8.3.9+ & php bindings
 - web server (Apache)



File transfer

- <2 GB: flash
- >2 GB:
 - Adobe Air
 - Java applet + Flash
 - Google Gears



other features

- pause/resume
- multi language
- multi federation (simplesamlphp)
 - admin interface
 - logging
 - configurable expiry
 - re-send/re-distribute
- multi-party sending with individual ACKs
 - very configurable



Where are we?

- operational beta in .au since Sept 2009
 - 100 GB within 10 hours (lab)
 - 50 GB intercontinental field use
- **Very promising user feedback from 250+ beta testers!**
- **Working towards version 1.0, RC1 midway August**



2010/2011 roadmap

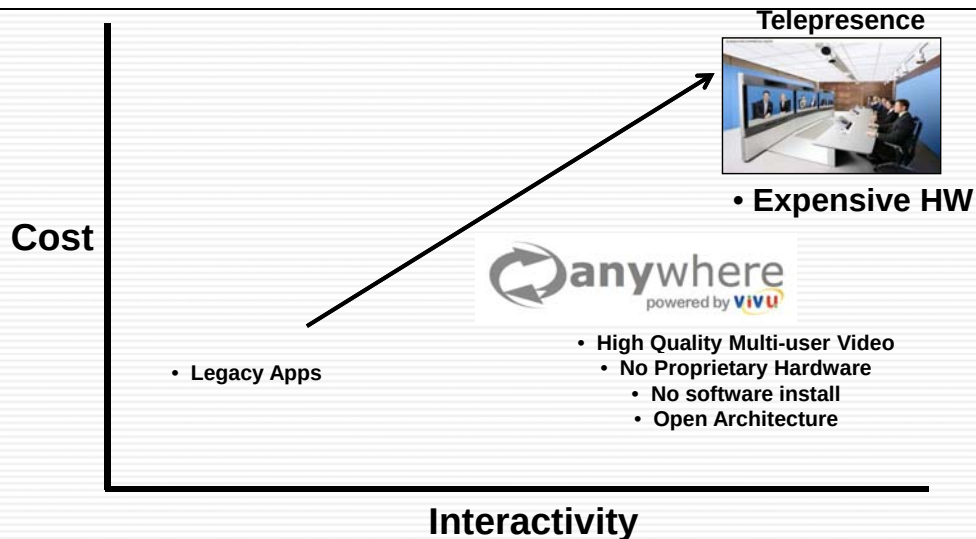
- Release 1.0
 - Several Flash UI improvements
 - Improve install and upgrade
- Multiple storage backends (Amazon S3?)
 - Encryption
 - Virus scan
 - Timestamping
- Move all admin UI to PHP
- Develop HTML5 UI + chunking/transfer
- Deployment in .au, .ie, .no, .nl, xx...?

want to help out?

- beta testers! Get your accounts right here
 - additional coder
 - smart
 - without desire to redo entire architecture
 - release tester/release manager
 - money
 - speed up development of specific features



Video Collaboration market



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AARNetAnywhere Solutions

#1 VuRoom

Secured employee video collaboration

- Skype presence / call setup
- Skype audio (no headsets!)
- Multi-party Video
- Share slides, desktop
- Record & replay
- external PSTN Bridge
- Personal Storage
- roadmap: SIP interop (dial into MCUs)



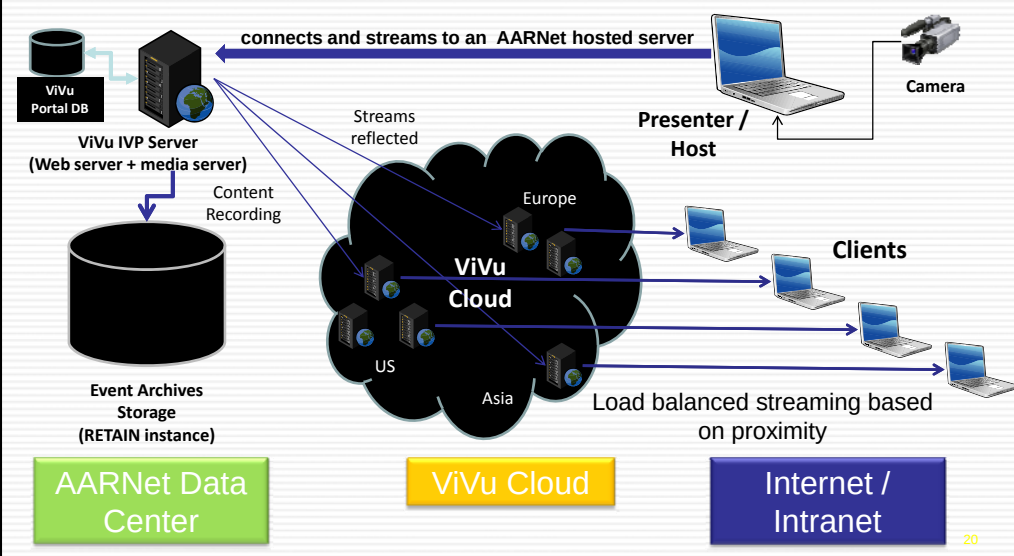
AARNetAnywhere Solutions

#2: VuCast

- Auditorium View Participative eTraining, Webinars
- Ask Live Video Question
- Screen Video Callers
- Scales to tens of thousands
- Share slides, desktop
- Moderated Chat
- Integrated Twitter/Group chats
- Instant Polls
- Instant event archive and publish
- roadmap: iPad streaming



VuCast Scalable Architecture



Architecture ct'd

Web services API

Enterprise Video Portal

- Enterprise SSO (Single Sign On)
- Restful API
- Instant Archive for Video Asset Management
- Analytics
- Template driven UI
- Code examples

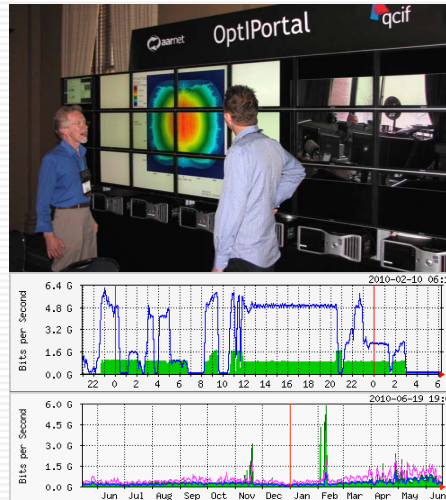
That's enough for now about making things simpler.
(there's a lot more, but less ripe yet – ask me anytime)

We're not just busy making existing stuff simpler
We enjoy making skunk works stuff run on nitrous, too

Brett Rosolen is our expert on nitrous. Over to him...

OptlPortal Collaboration Using sageBridge

- “A pixel duplicator and splitter for Visualcasting”^{*} or VisCasting
- Allows multiple OptlPortal Collaboration
- Inherently scalable: could consume all available bandwidth on a core network!
- Demonstrated at APAN29, utilising up to 6.4 Gbps of bandwidth
- Initial 6 month trial includes UQ, UniMelb, NICT (Japan) and GIST (Korea)



^{*}Extracted from “Visualcasting: Scalable Real-time Image Distribution in Ultra High Resolution Display Environments”,

./sageBridge Trial

Trial Network Related Outcomes

- ☺ **10G connectivity = optlPortals unleashed*!**
(* + >1Gb cluster fibre interconnects + grunty multi-core CPU + parallel apps + bezelless screens + lots of money + unlimited time)
- ☺ **Collaboration is easy***
(* as above*)
- ☹ 1G optlPortal uplink & 10G sageBridge uplink is about the minimum
- ☹ Multicast may suffice (certain applications)
 - ☹ Propagation of 10G through campus may be slow & expensive
 - ☹ IT departments may struggle to manage the drastic increase in throughput
 - ☹ International links may be accidentally hammered (e.g. routes to South East Asia)
 - ☹ Conventional networking tools don't tell the whole delivery story...



VisCasting Demand	Now	Within 2 years
OptlPortal B/W (per site)	0.3 - 3 Gbps	1 – 7.5 Gbps
sageBridge B/W	< 10 Gbps	30 - 40 Gbps

4K (& 3D) over IP & Digital Assets

4K (& 3D) over IP

⊗ Barrier to entry is \$\$\$*

(* > \$500K)

☺ We found a cheap* option (with stereoscopic capability)
(* relatively)

☺ Collaboration Opportunities with UK & Poland

☺ Bitrates from 200M – 6.5G



Digital Assets

- ☺ Investigating options for a cloud computing addition to CloudStor.
- ☺ MediaMosa (middleware media distribution model)

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Your Help

- Calling for expressions of interest to collaborate – sageBridge, 3D experimentation, 4K /DCI broadcasting
- Particularly interested in Tasmania, South Australia and Western Australia.
- Have gear, will send it (conditions apply)