Global Platform for Rich Media Conferencing and Collaboration VRVS 3.0

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HTASC

Outlines

- VRVS General information
- VRVS 3.0: New version in production since February 2003
- Worldwide VRVS Deployment
- VRVS Statistics
- VRVS On going and Future developments

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VRVS Web Service Design

- **Unified Web User Interface** to schedule and join/leave a meeting independently of the application.
- **Multi-platform**: Windows, Linux, Unix and Mac.
- **Easy to use**: Everybody (from 4 to 77 years old) knows how to click on a web page today. Not true for running a VCR
- **Virtual Room Concept, Scheduling**; Create a virtual space were people can exchange real-time information
- **Join or Leave** a Collaborative session **anytime**. *Do not need to know in advance how many participants and booked ports capacity. Just announce the meeting and people will join from anywhere.*
- **Full** Documentation and Tutorial
- **Self service**: Don't need a technician or expert to organize and join a conference

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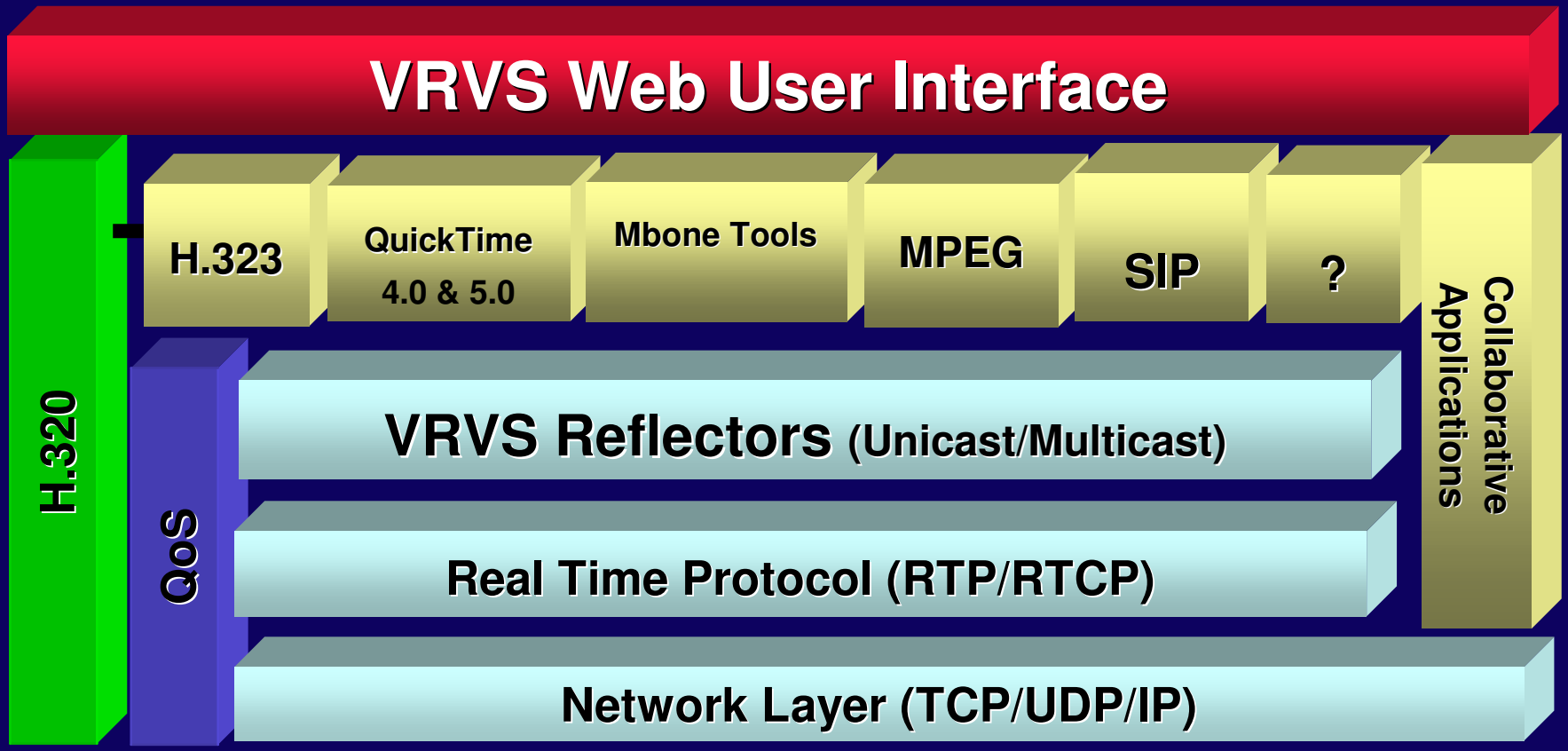
VRVS Core Architecture

- VRVS combined the best of all standards and products in one unique architecture
- Multi-platform and multi-protocol architecture



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VRVS 3.0

Released on Feb. 22, 2003 after one year's development and testing!

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VRVS 3.0 New Features

- Optimized web access and user intuitive interface design
- Improved Global scheduling system transparent to local time zone
- Community concept with dedicated Virtual Rooms (VRs)
- World wide VR increased from 10 to potentially unlimited.
- J2EE secure web admin interface
- SQL DB server to manage VRVS booking, users profile, reflector configuration and monitoring, statistics..
- User-oriented login with improved identification and IP detection (e.g. DHCP, NAT,..)
- Redesign and improved sharing service
- Mac OS X support
- OpenMash Mbone support
- Solution for host behind Firewall and NAT

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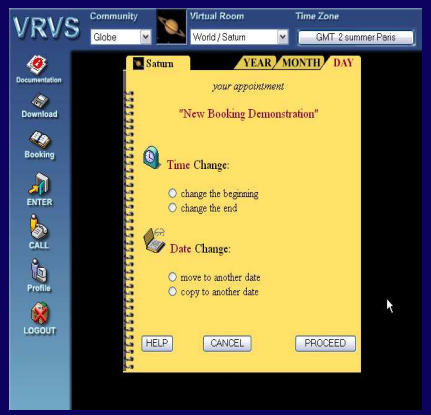
VRVS 3.0
Global Scheduling System

- **Booking Wizard**, with auto selection of the Virtual Room
- **Date/Time** shown in the selected time zone
- **Quota** management
- **Password protected** secure meeting
- **Mailing list** feature to keep all the participant in touch of creation and modification or cancellation of booking
- Choice among **different bandwidth ranges**



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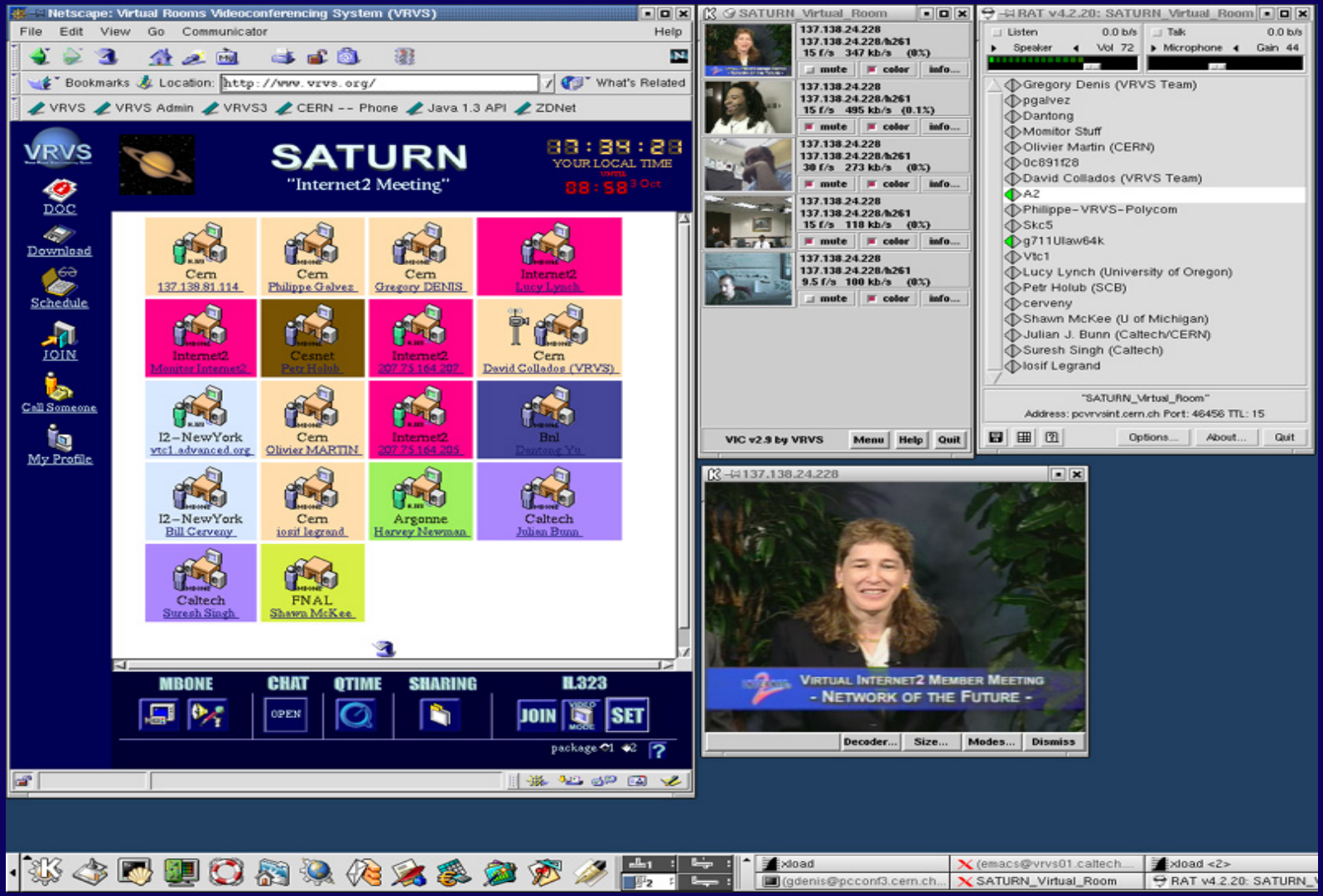
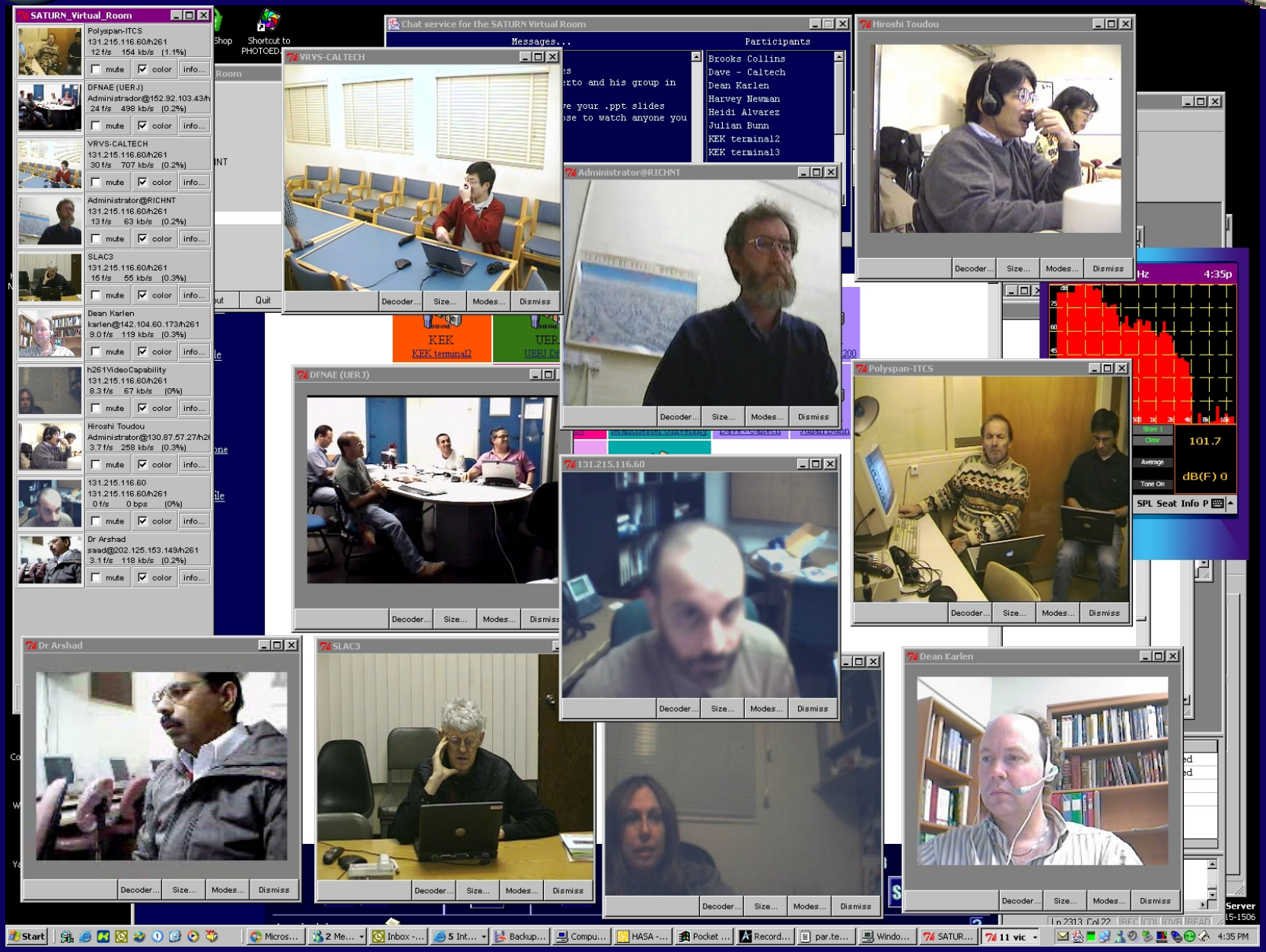
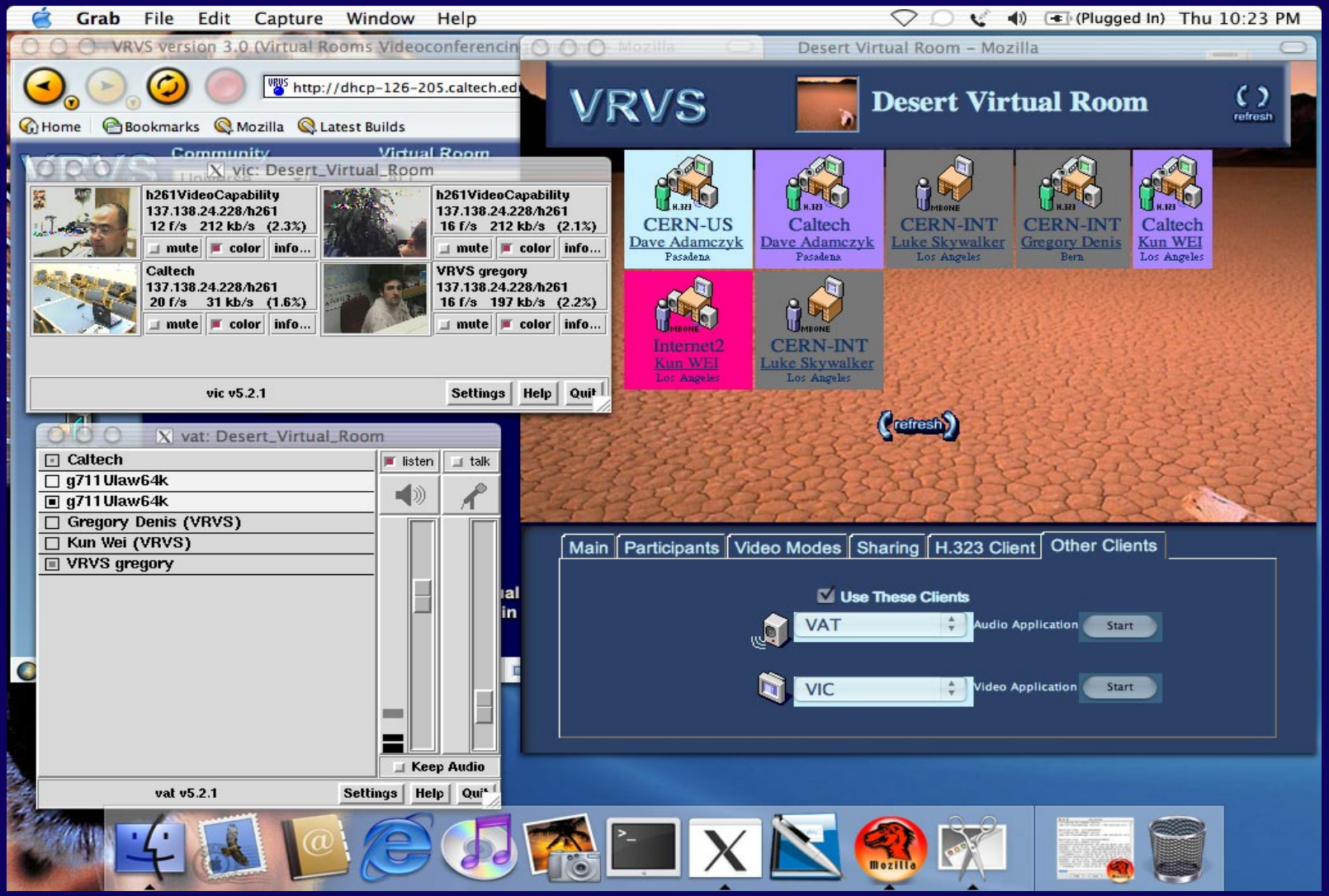
VRVS on Linux



VRVS on Windows



VRVS on Mac OS X



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Enhanced VRVS Reflector

- Possibility of tunneling (TCP or UDP) between reflector servers. All communications use only ONE port !
- Peer-to-peer design with high scalability and flexibility
- Solution for Firewall and NAT
- Better design to accommodate H.323 clients
- Fully support H.263 video codec
- Perform audio mixing
- Perform some packet recovery
- Aggregate dynamically bandwidth for H.323 multipoint conference between End Points to an overall maximum conference bandwidth
- Fix incompatibility between several H.323 end points
- Remotely mute/unmute video or/and audio
- Optimized network bandwidth utilization
- Real-time packet loss monitoring
- Support up to 16,000 Virtual Rooms

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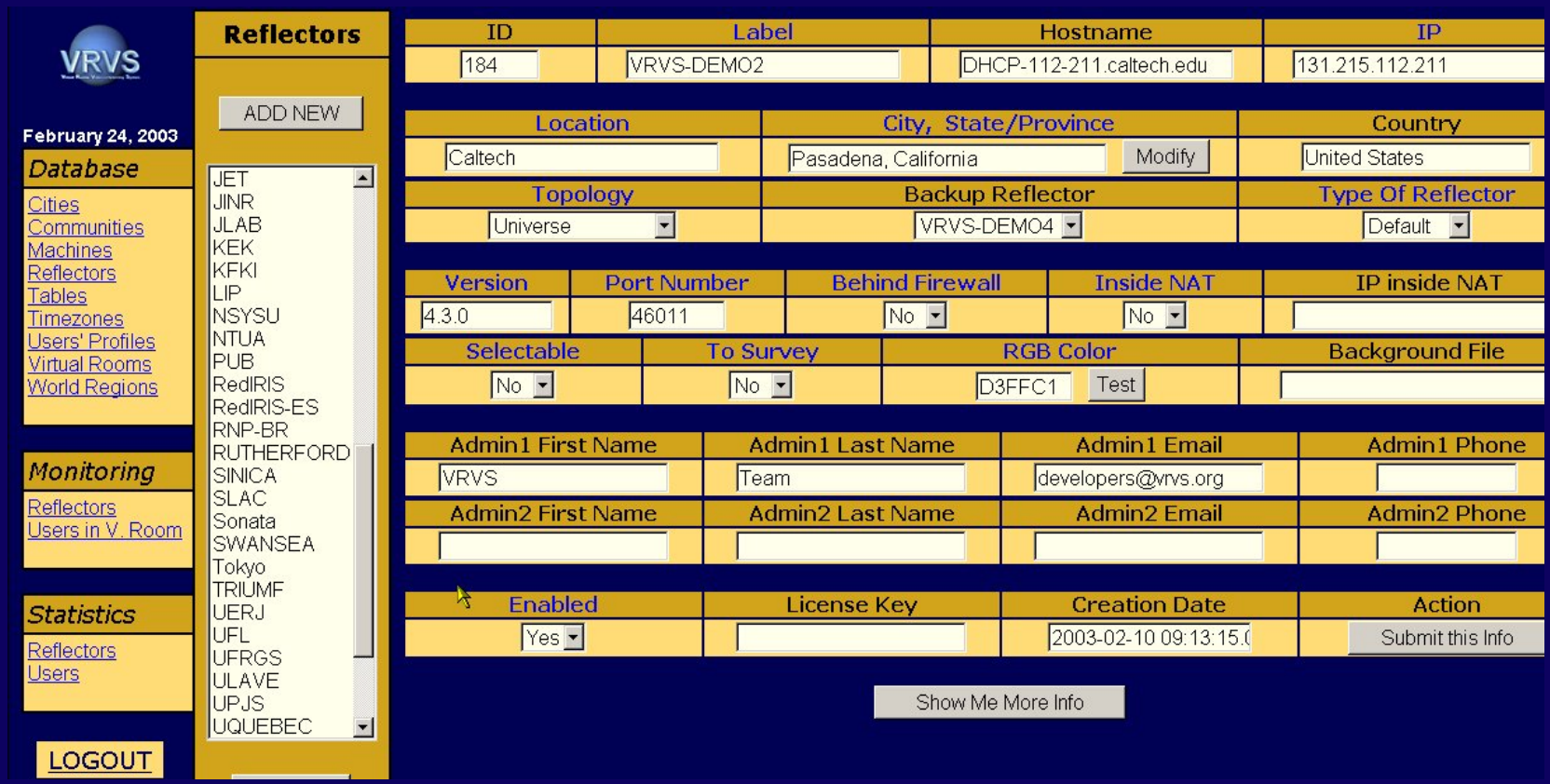
VRVS 3.0 Web Admin Interface

- Pure Java J2EE + XML
- HTTPS/SSL secure web interface
- Monitoring reflectors and users in ongoing conference
- Full control on database



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VRVS Worldwide Deployment (June 12, 2003

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VRVS Reflectors Deployment

73 reflectors Deployment World wide

USA	26
Spain	5
Brazil	5
Switzerland	4
UK	4
France	2
Canada	2
Taiwan	2
Greece	2
Portugal	2
Israel	2
Japan	2
Poland	1
Italy	1

Finland	1
Chile	1
Pakistan	1
Venezuela	1
Hungary	1
China	1
Slovakia	1
Ireland	1
Russia	1
Czech Republic	1
Belgium	1
Romania	1
Germany	1

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VRVS Network Servers Deployment for High Energy and Nuclear Physics

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VRVS Statistics

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VRVS registered users (up to June 12, 2003)

Registration started from Feb 20th, 2003
(Previous database has been deleted)

USA	920
Spain	753
Italy	208
Switzerland	280
Germany	190
France	183
UK	166
Brazil	165
Japan	83
Canada	72

Number of Registered Users:

3981

From

81 Countries

Taiwan, Greece, Argentina, Russia, etc…

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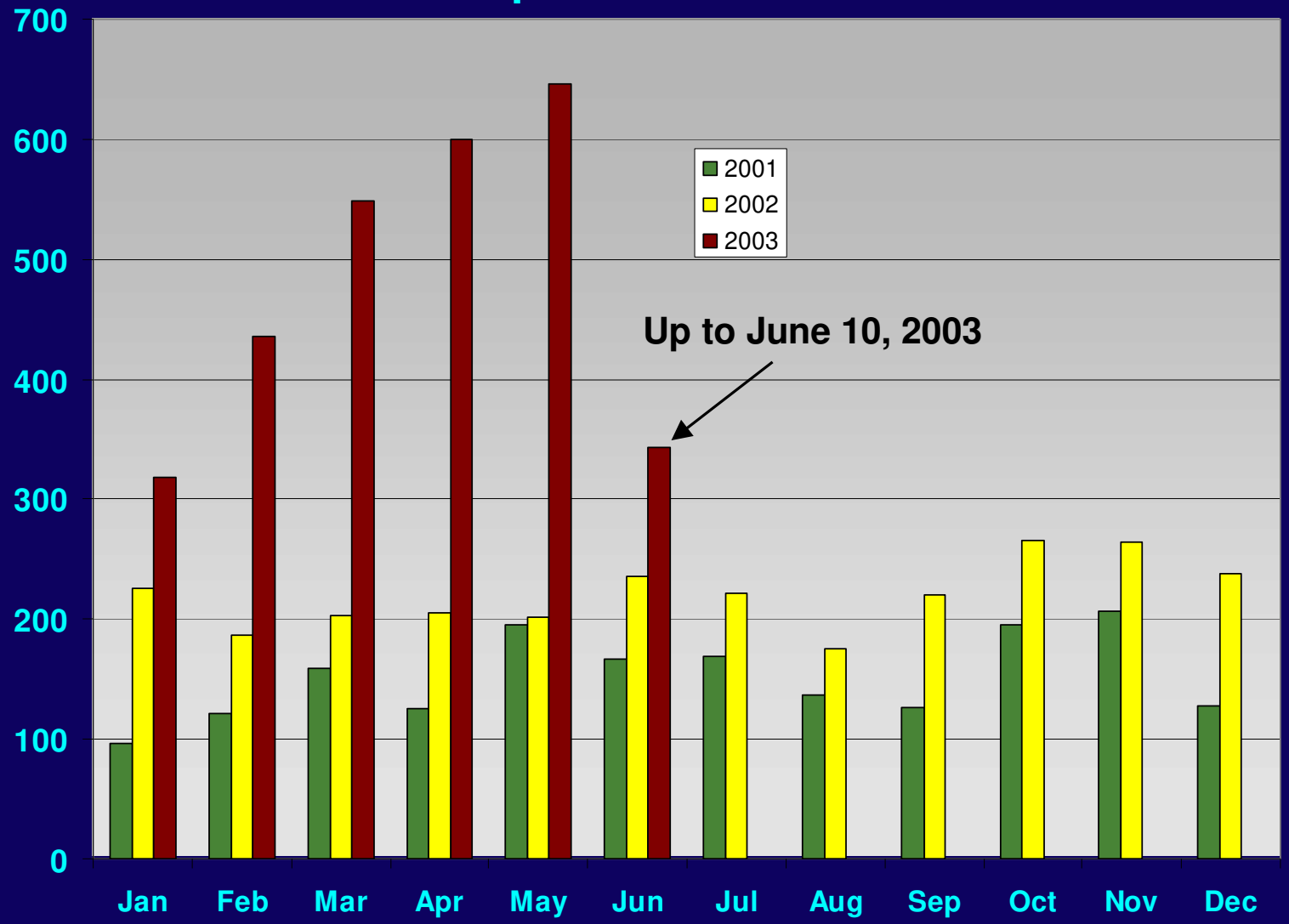
Scheduled Multipoint Videoconferences Sessions



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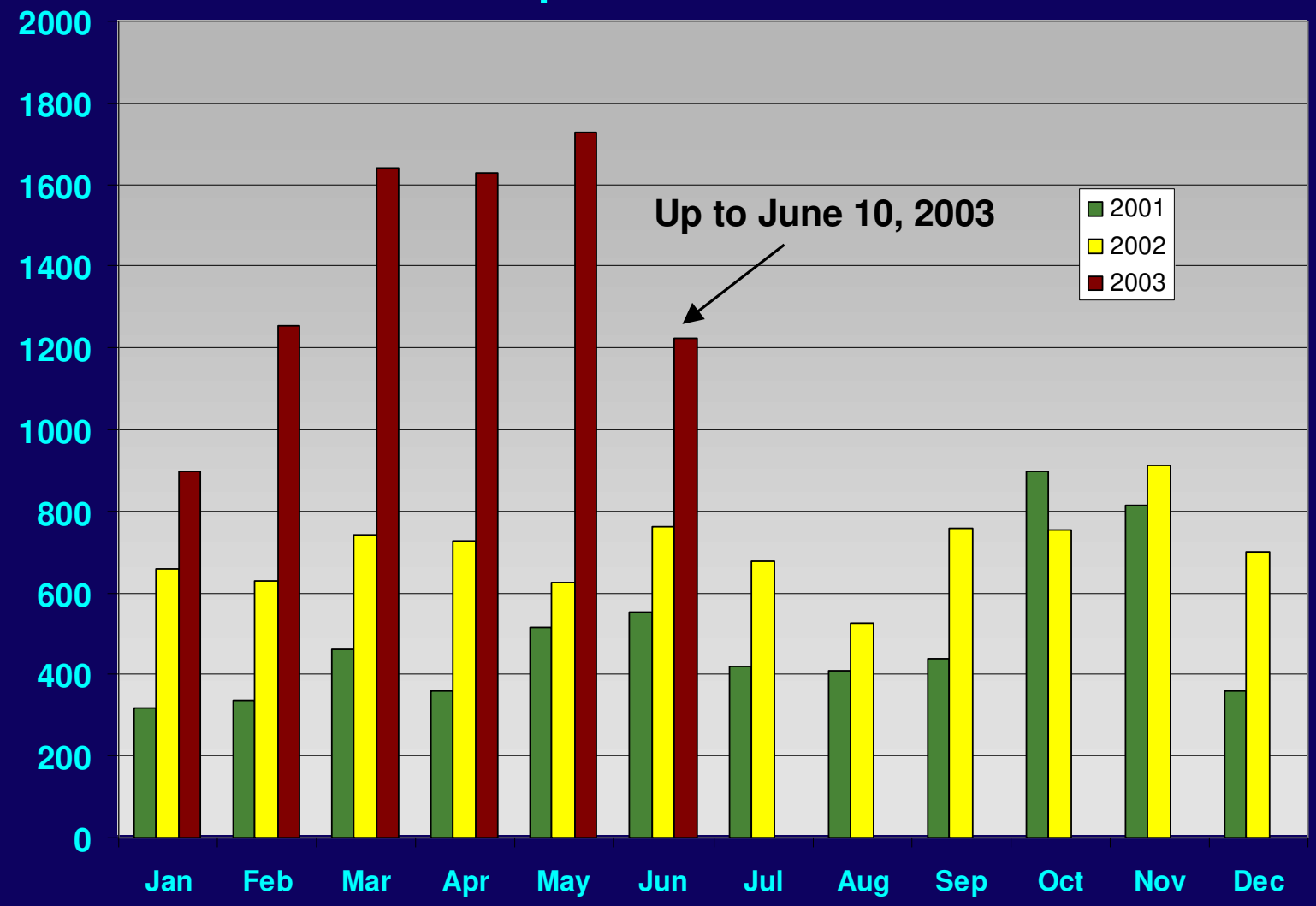

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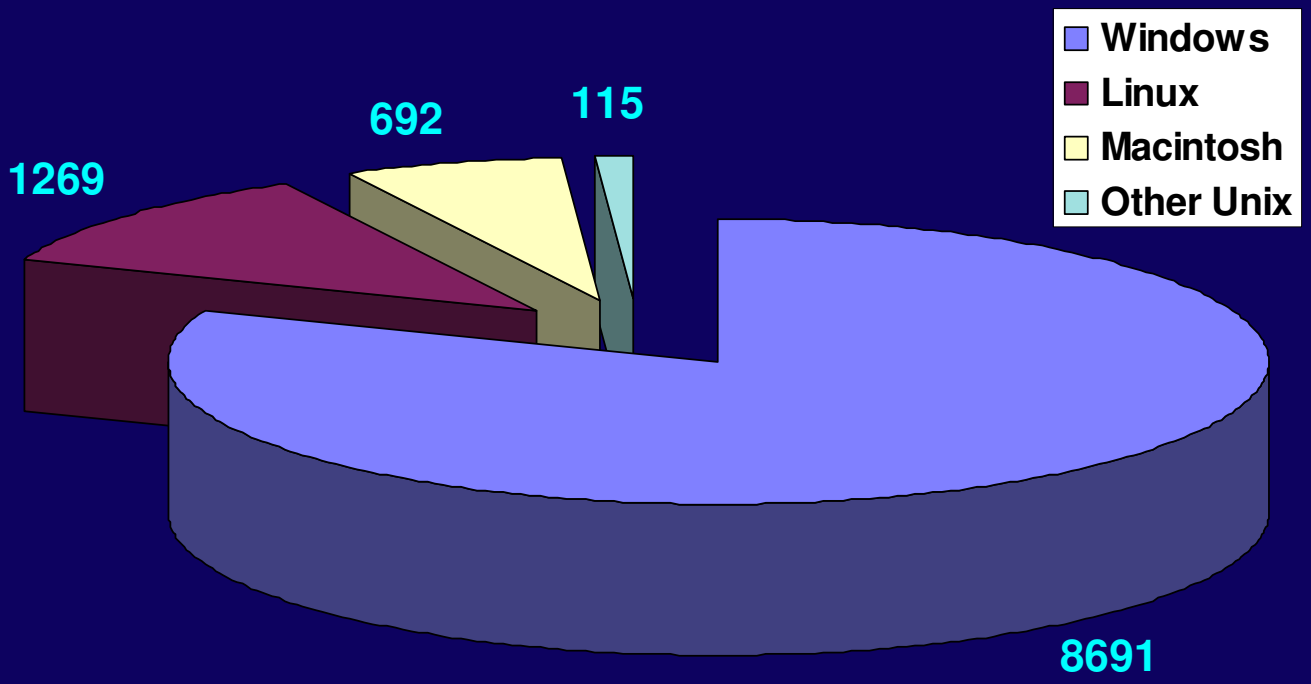
VRVS Machines O/S distribution



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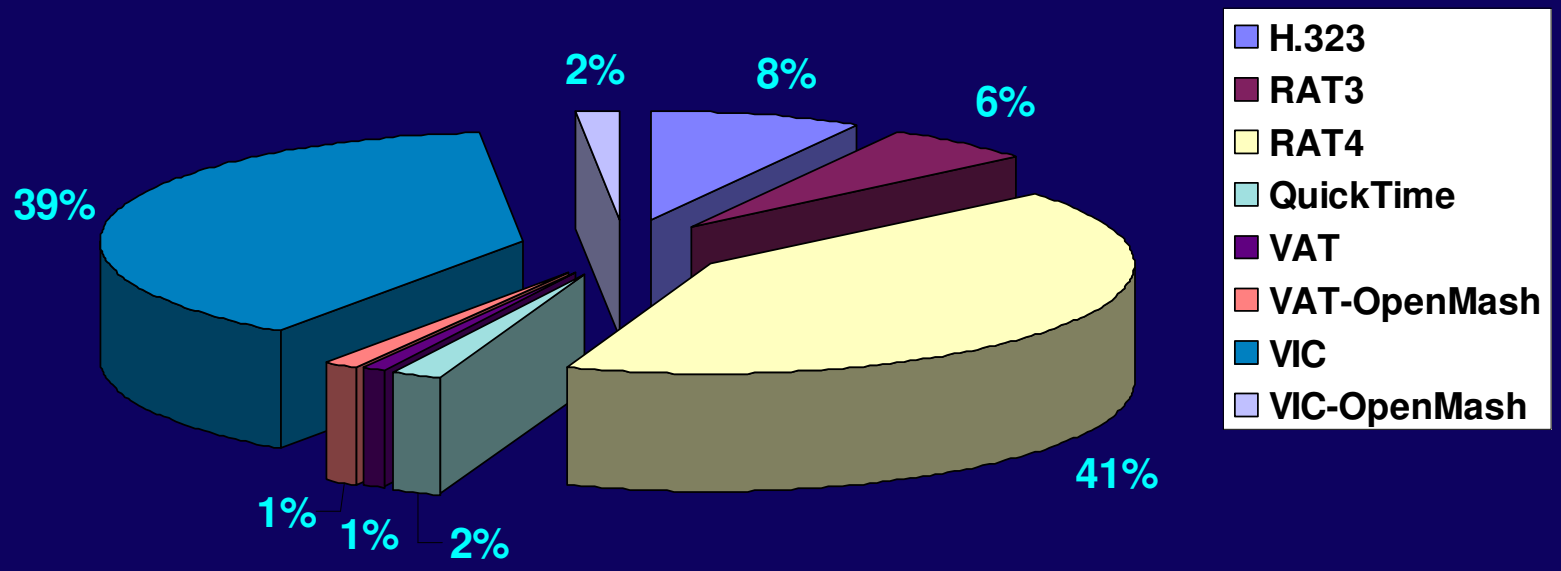
Videoconferencing Tools used with VRVS (June, 12th 2003)
(Total 125076 connections)



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VRVS connection per communities

A community hosts a dedicated set of Virtual Rooms

Universe	97132
RedIRIS	27883
Astro	4419
Fusion	4714
CMS-Control Room	673
AccessGrid	5647

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VAG and using VRVS as a personal AG node

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Virtual Access Grid

- User can connect to either unicast or multicast videoconferencing with full supported features
- User can create his/her own virtual AG node and virtual venues and integrated into VRVS
- Different Video modes possible:
  - Voice switched : default mode for H.323 client. one video stream at a time
  - Timer switched : browse through all the video based on preset timer. one video stream at a time.
  - Selected Streams: Click among the video participants to view selected video streams (one or several streams available).
  - All Streams

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When to use VAG?

	AG	VRVS	VAG
Multi-cast	☺	☺	☺
Unicast		☺	☺
On-Site AG Node	☺	☺	☺
Without AG Node		☺	☺
High Quality Video	☺	☺	☺
High Quality Audio	☺	☺	☺
H.323		☺	☺
High (> 20Mbps) Bandwidth	☺	☺	☺
Normal (10Mbps) / Low (<1Mbps) Bandwidth Network		☺	☺

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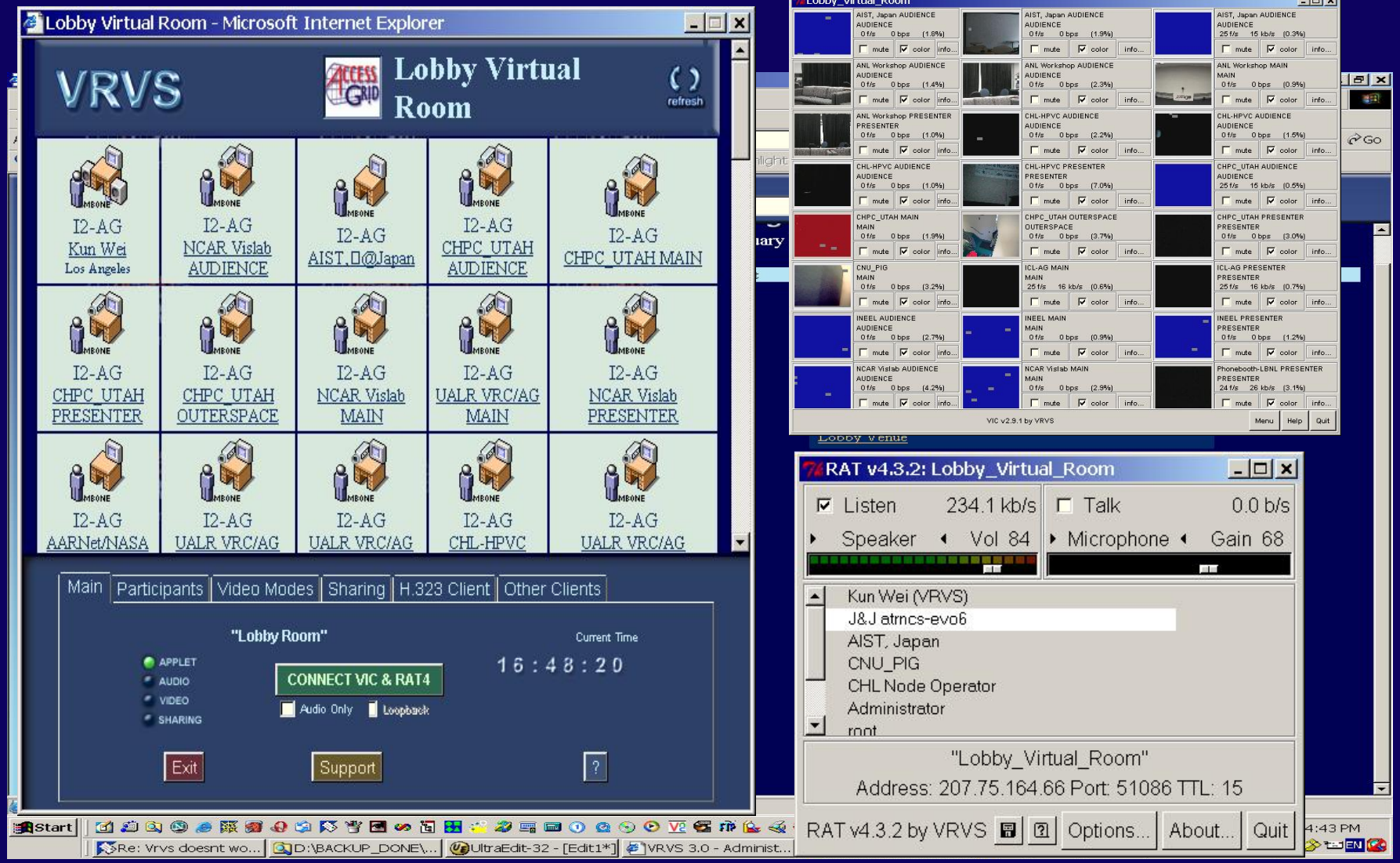
Connect to AG virtual venues with Mbone



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On Going and Future Developments

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VRVS Next Development (1/3)

- Adaptation to emerging standard: IPv6, SIP
- Integration of new hardware/software for high-end interactivity.
  - ✓ Already developed an MPEG2 MCU (using Minerva codec). Will port to other codec if demand.
  - ✓ Developed a multipoint videoconferencing system based on MPEG4 compression standard.
  - ✓ Developed a system using HDTV standard If affordable hardware devices available.
- Improved Security
  - Easy support of Firewall and NAT.
  - Conference access control, user authentication and authorization

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VRVS Next Development (2/3)

- Develop advanced monitoring and tracking tools for ad-hoc conference as well as scheduled multi-site conferences
- Develop a pure peer-to-peer VRVS Network servers network to be able to handle thousands of parallel sessions.
- Develop advanced network monitoring agents (based on Java and web services) to run on each network servers.
  - ✓ We will know in real time, packet loss ration between server, jitter, bandwidth available, VRVS Network servers system information (CPU, memory, ..)
  - ✓ Possibility to automatic rerouting between VRVS network servers to find a better network path.

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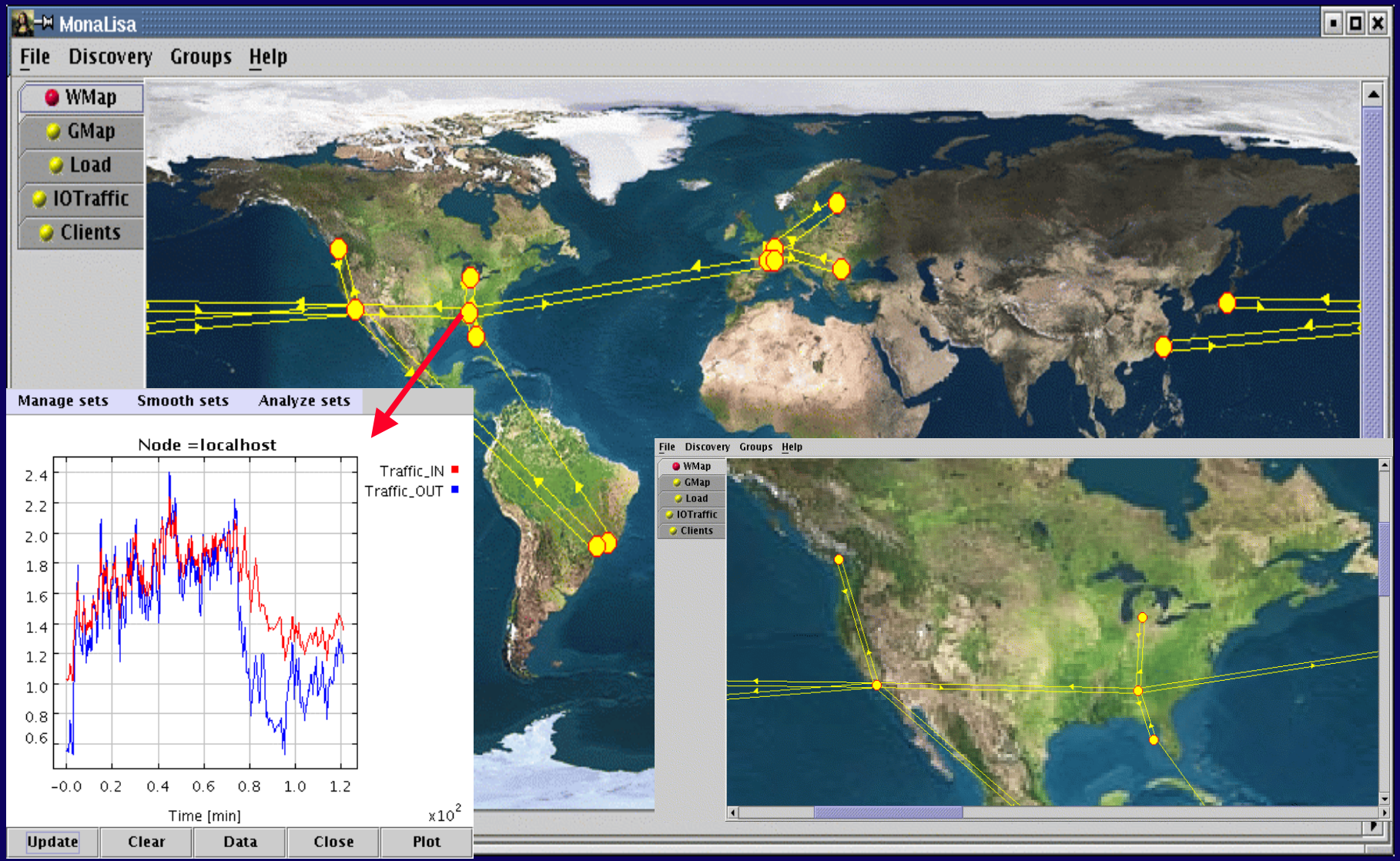
Monitoring VRVS Reflectors



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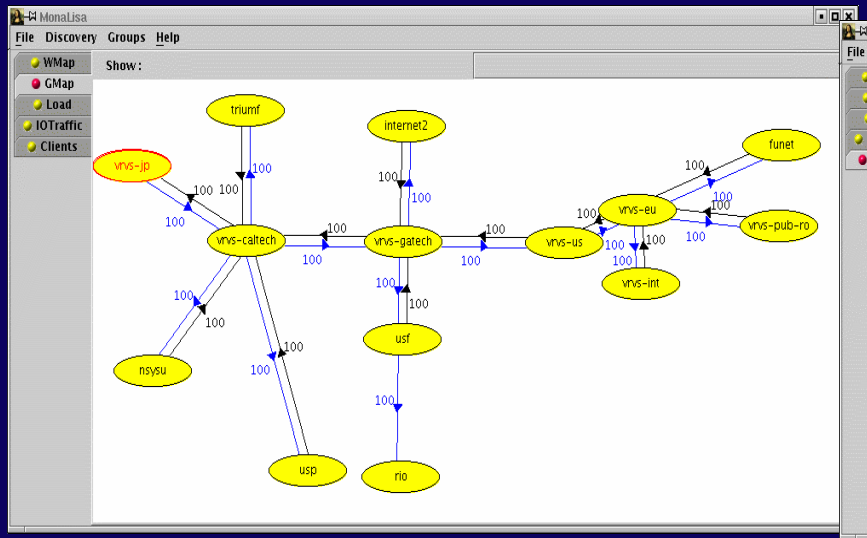
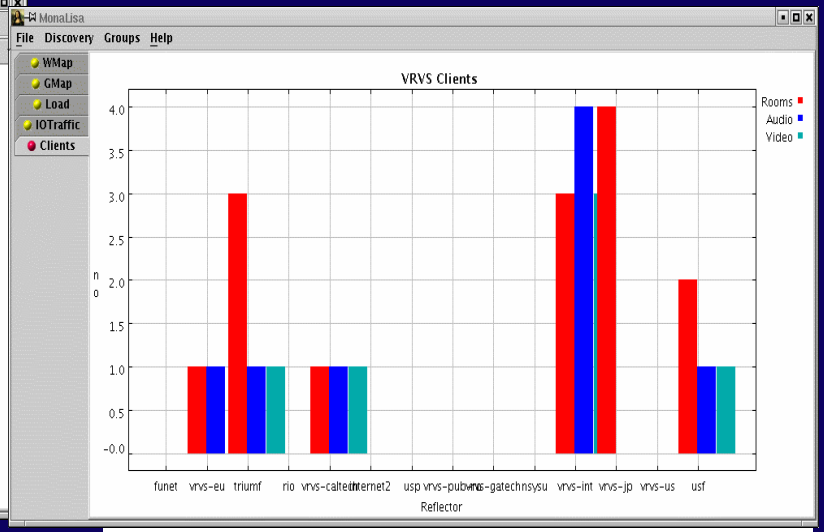
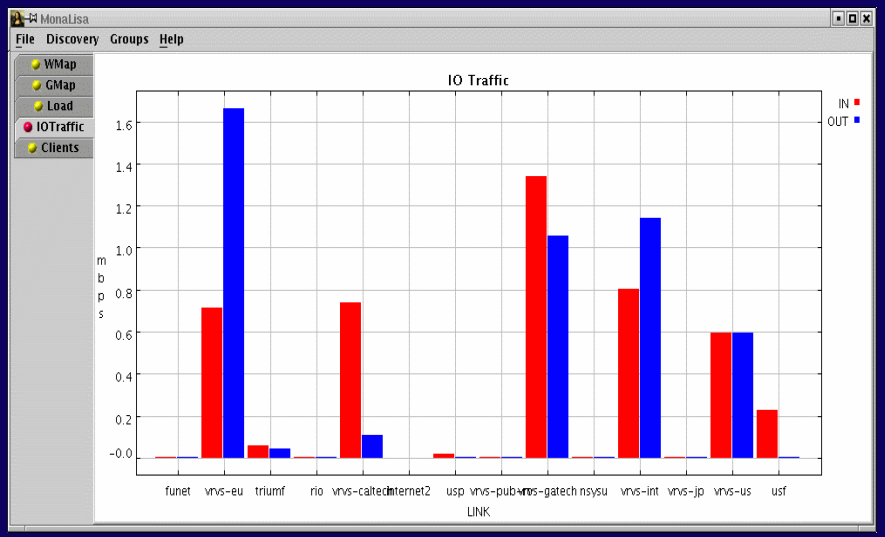
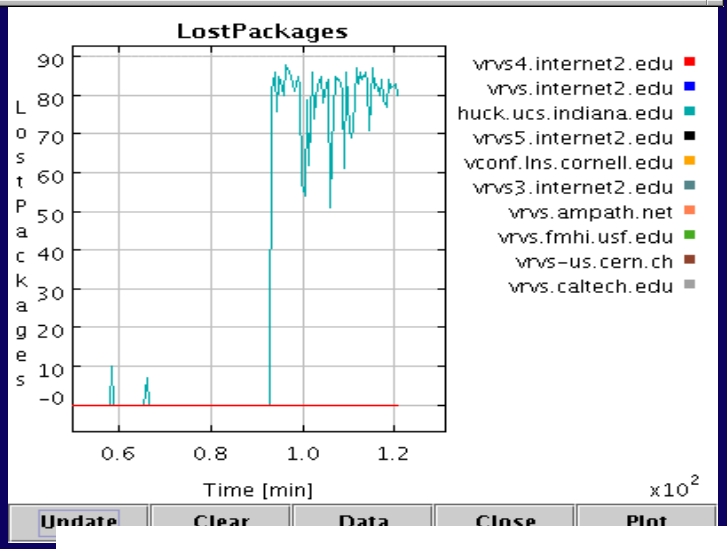
Monitoring VRVS Reflectors (2)









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Next Developments (3/3)

Wireless/Mobile Client Integration:

- User Interface dedicated for small screens
- Integration of low end client:
  - Provide dedicated software clients (VVP, JMF)
  - Transcode streams to lower bandwidth
  - Support MPEG4

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VRVS Virtual Space Setup

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VRVS Team

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Further references

- http://www.vrvs.org
- support@vrvs.org

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