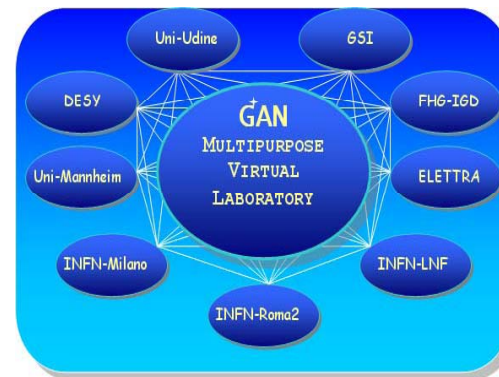


Status of WP8 GANMVL

Workshop on Electron Accelerator R&D for Energy Frontier,
15-17- May, Orsay

F. Willeke for the GANMVL COllaboration



Contents:

- Scope of the project
- Design Features
- Status of Implementation

Project Scope



Stationary Setup

Semi-mobile Setup

Mobile Setup

Proto typ
June 06

**) High Resolution Video Conference Cameras*

	High Resolution Video Conference Cameras	3-D high resolution Video & Cameras	Multiple Screens	Large Display	Lighting	Audio Support	Virtual Instruments	Stands	Control System Interface	Wireless Access Point
remotely assisted Accelerator Experiment	x	x	x	x	x		x			x
Remotely assisted Accelerator Commissioning	x	x	x	x	x		x			x
Remotely assisted Test preparation	x	x	x		x	x	x	x	x	x
Remotely assisted Assembly	x	x	x		x	x	x	x	x	x
Remotely Assisted Maintenance	x	x				x	x		x	x
Remotely Assisted Repair	x	x				x	x		x	x
Remotely assisted Trouble Shooting	x	x				x	x		x	x



**) High resolution: 10Hz, 800x600 pixel*

	EUD-M	EUD-SM	EUD-CR	EUD-RE
Wireless access point	+	+	-	-
Moveable camera	-	+	-	-
Fixation for moveable camera	-	+	-	-
Headphone + microphone	+	+	+	+
Head mounted display	+	-	-	-
3D video receiver side	-	-	-	(+)
3D video transmission	-	(+)	-	-
Head mounted camera	+	-	-	-
Remotely controlled camera	-	+	-	-
Multiple, switchable camera				
Connections for instruments (osci, voltmeter, etc.)	+	+	-	-
computer equipment				
PDA	(+)	-	-	-
Tablet PC	-	+	-	-
Laptop	+	+	-	-
Big high resolution screen	-	- +	+	+
Possibility for multiple displays	-	+	+	+
Projectors	-	-	+	+
Printer	-	-	+	+

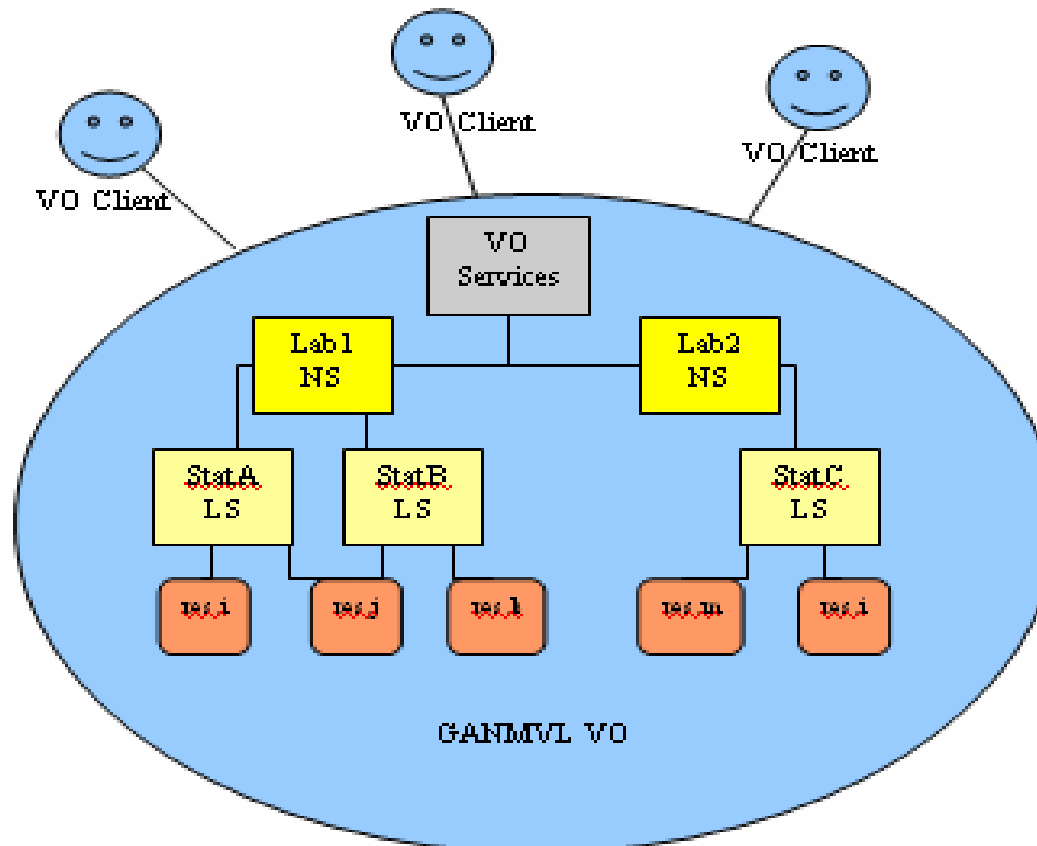
The global Architecture of GANMVL

Several GANMVL setups will exist at laboratories serving different user groups (Virtual Organisations, VO). Therefore the GANMVL has a multi-tier architecture: one GANMVL node for each institute or laboratory in the VO plus some centralized service to support the connection of the different GANMVL nodes in the VO. The GANMVL node represents a sort of Point Of Presence in the GANMVL VO.

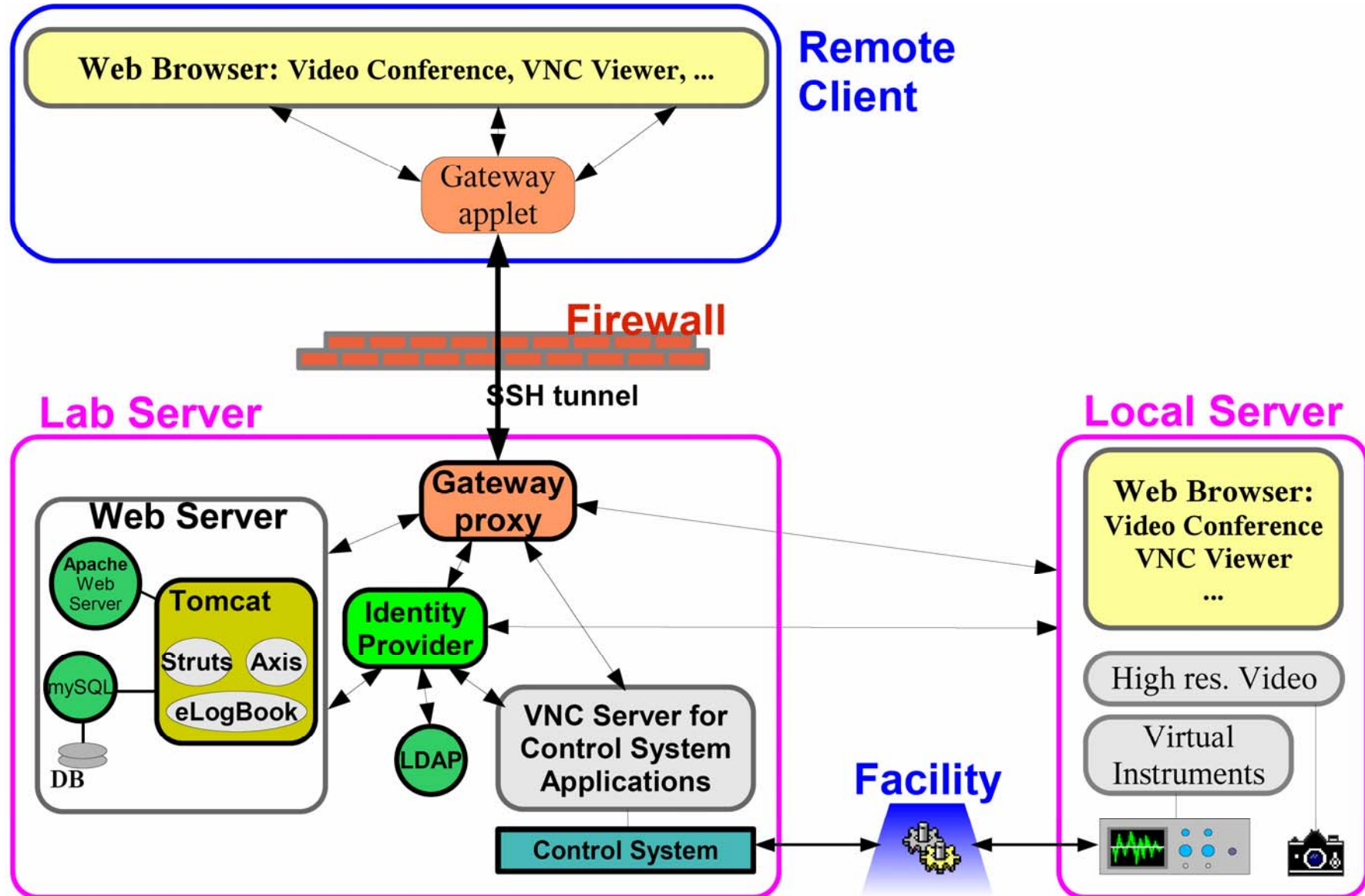
A GANMVL node consist of at least 2 components:

- the Laboratory Server or Node Server (NS)
- a set of Local Servers (LS)

The NS is an application server usually installed on a single host, running the portal application, the user and project database and all the infrastructure components need to allow a secure access to the laboratory resources in the VO. The NS manages a (possibly) infinite number of local servers, and activates actions implemented by agents running in the local servers.

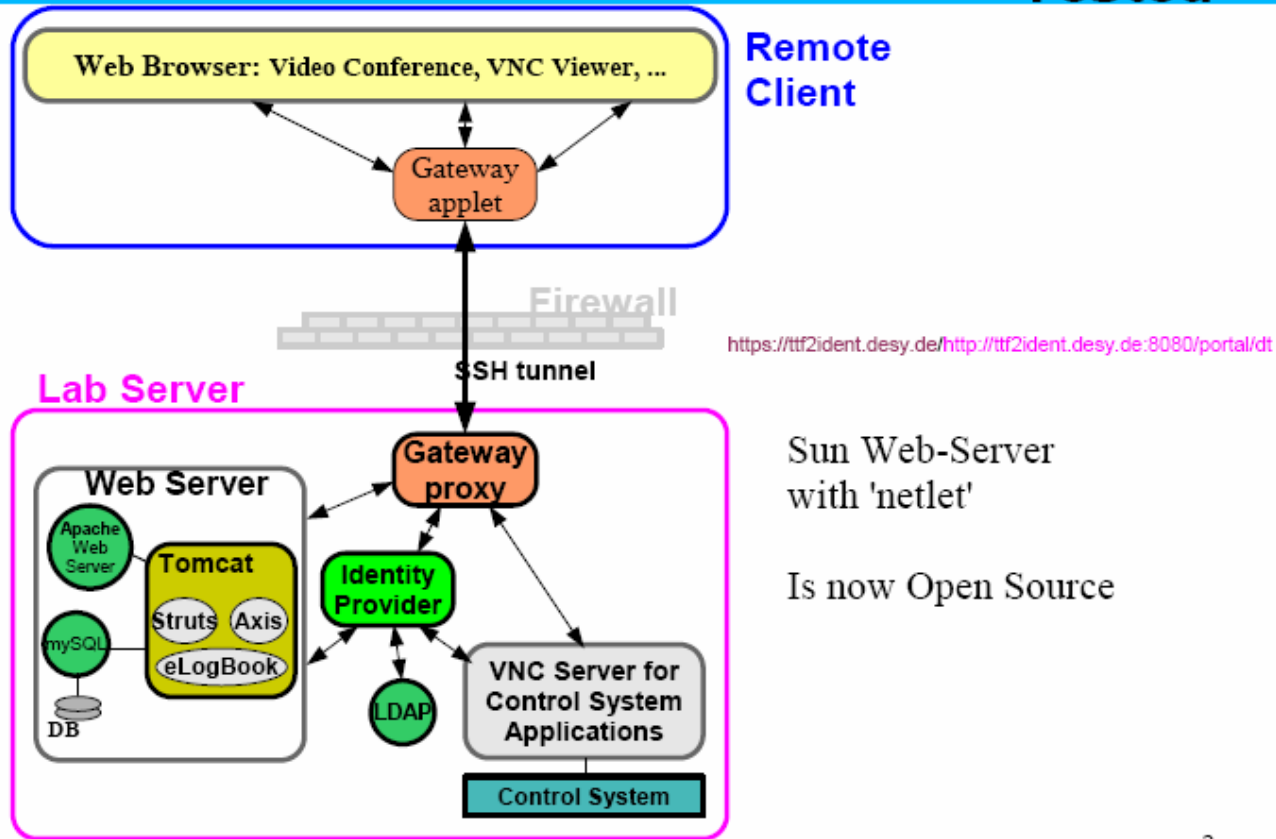


Web-based System Architecture



System Architecture

Tested



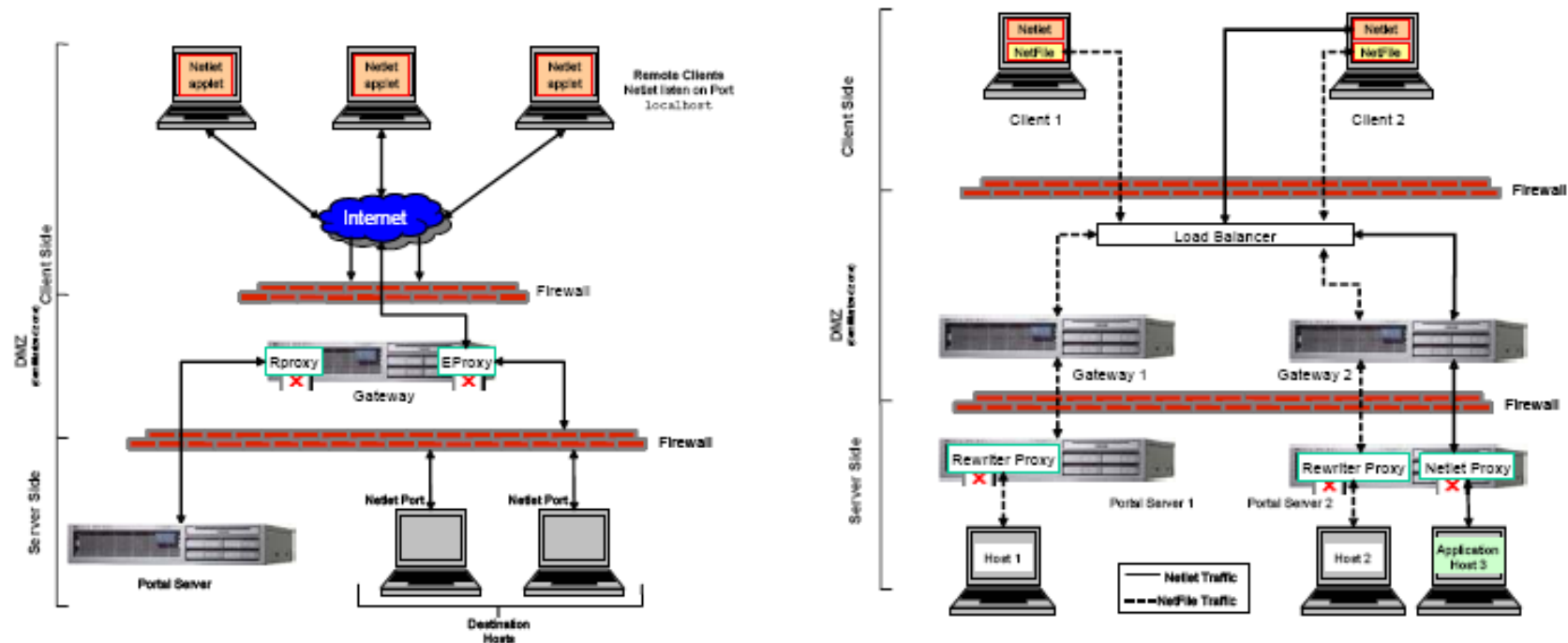
<https://tf2ident.desy.de/http://tf2ident.desy.de:8080/portal/dt>

Sun Web-Server
with 'netlet'

Is now Open Source

Network Security

SSH, Netlet (SUN) technology



Laboratory Server Design Summary Table

Hardware:

Linux server

No special requirements

1Gb Ethernet board

Software:

Apache

TomCat

MySQL

Identity provider server (LDAP, Single sign on)

MVLweb application

eLogBook

Help System

Firewall and ssh tunnelling software

Streaming and video recording server (?)

VNC Gateway

Apache http_proxy module

Local Server (Semi Mobile) Design Summary Table	
Hardware: Windows PC / Linux PC (100GB) 2 network connections + <u>wLAN</u> GPIB adapter USB hub N x <u>Firewire</u> /video-in/hub High Res, Digital Camera (600 x 800 x 10Hz) Videoconference Equipment (Camera + Microphone + Headphones)	Software: VI environment: (<u>Labview</u> , <u>IVI Libs</u>) Mpeg4 / XDIV codecs and viewer Video Source Streaming Software Network software (NAT, Routing, DHCP, ...) VNC server Identity provider Client Software (single sign-on) Local Server Software (to communicate with Lab server, serve files, execute commands, ...) Web Browser (<u>Internet Explorer</u> or <u>Mozilla Firefox</u>) Mpeg4 or XDIV viewer Videoconference Software (maybe downloadable from the web like VRVS)

As a Semi-Mobile Local Server the Portable Computer EMP-390-20" LCD has been chosen



Client Design Summary Table

Hardware:

Any PC (Windows or Linux)
Videoconference Equipment
(Camera + Microphone +
Headphones)

Software:

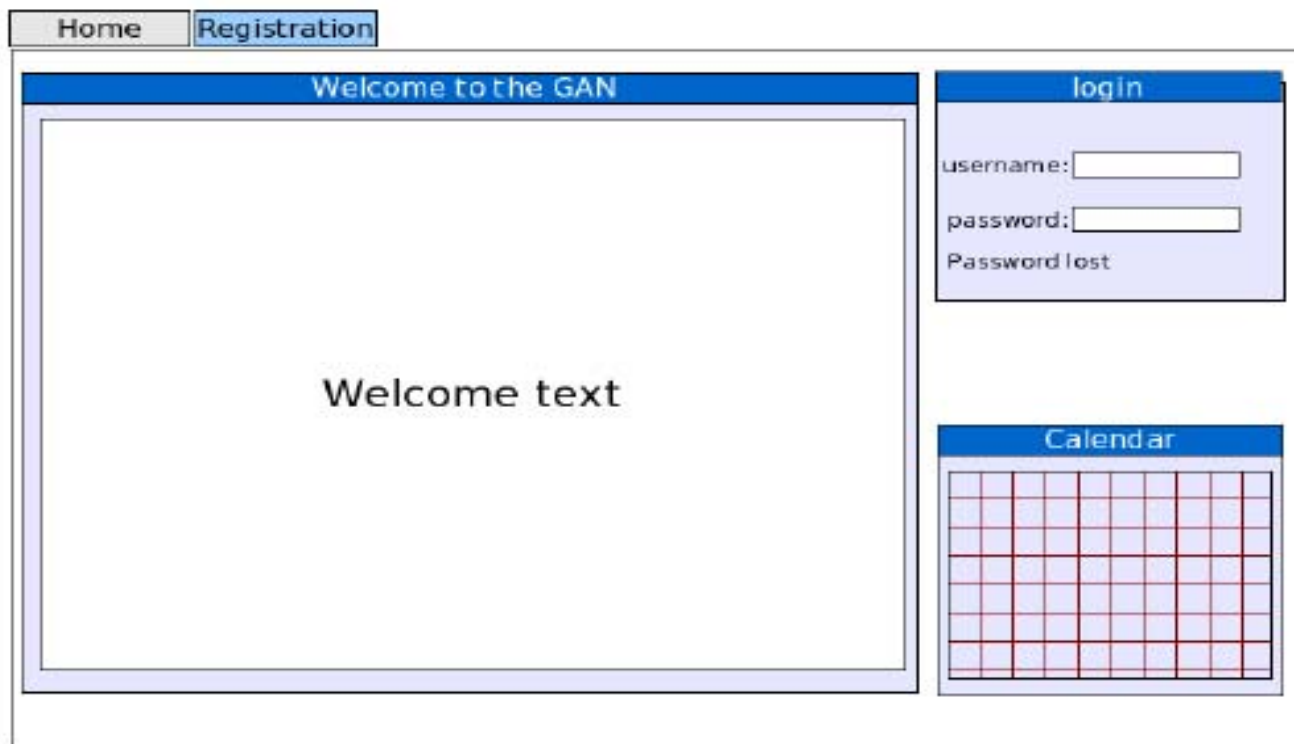
Web Browser (Internet Explorer or Mozilla Firefox)
Mpeg4 or XDIV viewer
Videoconference Software (possibly downloadable
from the web like VRVS)

MVL Applications vs. User Roles

MVL Application	Remote User	Local User	Facility Supervisor User	Admin User
<i>Communication / Groupware Tools</i>				
Help (Read)	x	x	x	x
Help (Edit)	x	x		x
E-Logbook	x	x	x	x
Videoconferencing	x	x	x	x
e-Mail	x	x	x	x
Sharing of local user's desktop	x			x
<i>Facility Applications (instruments, control system)</i>				
Select and View	x	x	x	x
Select and Control	x	x		x
Disable Control		x	x	x
Configure MVL data base entries to activate applications		x		x
<i>HR Video Applications</i>				
View video stream (live)	x	x	x	x
Start video streaming (live)		x		x
View video stream (archived)	x	x	x	x
Start video streaming (archived)		x		x
<i>Hardware Asset Management Tools</i>				
Configure VI connection parameters (IVI, VISA)	x	x		x
<i>System Administration Tools</i>				
Create / delete user profile				x
Modify user profile		x		x

User Portal

- *Web based access*
- *JAVA-Portlet technology used*
- *single login (single sign on procedure)*



The illustration shows a web portal interface with a navigation bar at the top containing 'Home' and 'Registration' tabs. The main content area is divided into three sections: a large central 'Welcome text' area, a 'login' form on the right, and a 'Calendar' widget at the bottom right. The 'login' form includes input fields for 'username:' and 'password:', and a 'Password lost' link. The 'Calendar' widget is a grid with red lines.

Home	Registration
------	--------------

Welcome to the GAN

Welcome text

login

username:

password:

Password lost

Calendar

Illustration 1: home

Implemented User Profiles:

„Remote Expert“

„local client“

„control-room supervisor“

„system administrator“

Just after the login the user can access the user profile tab where can enter his specific info like vrvs account or skype account, etc.

The help tab gives access to the hel system.

The download tab gives access to the software download (e.g. Videoconference client, high resolution client, IVI instruments, etc).

The E-logbook tab gives access to the electronic logbook.

The ganmvl tab gives access to the GANMVL core application.

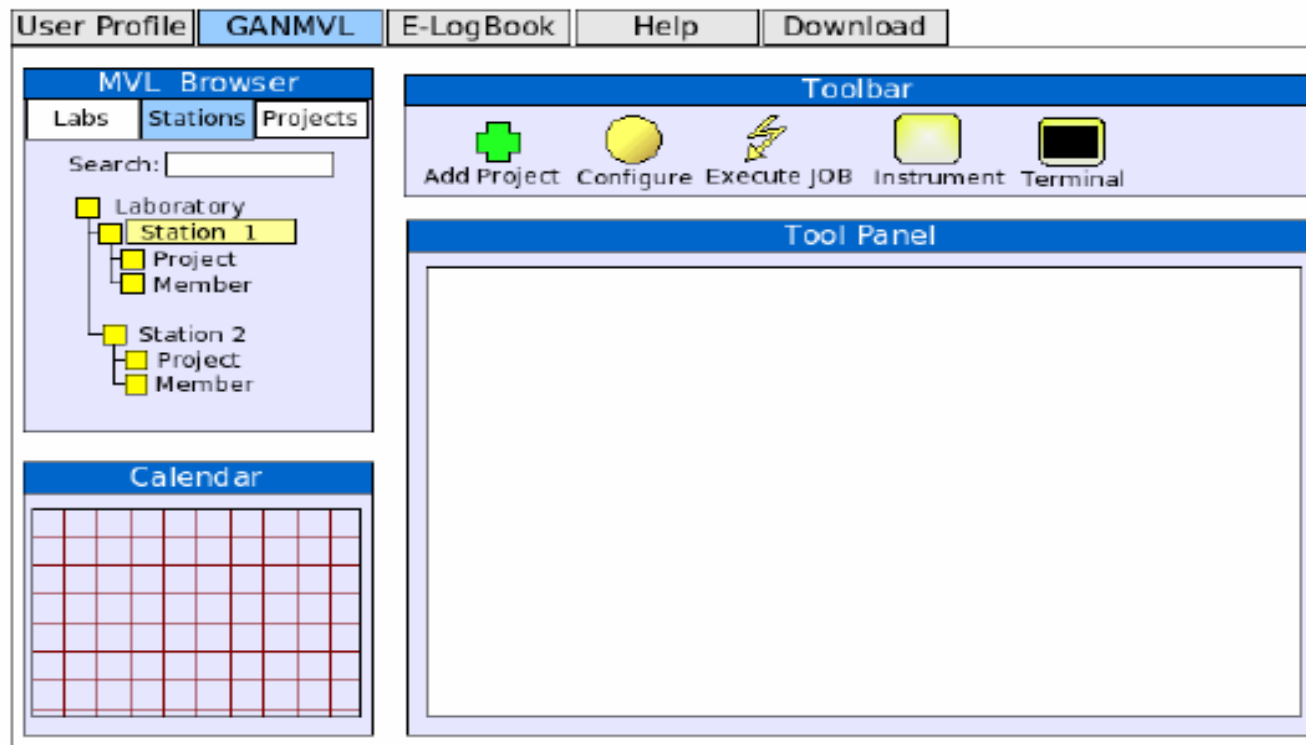


Illustration 2: ganmvl page

Example of view as seen by remote expert

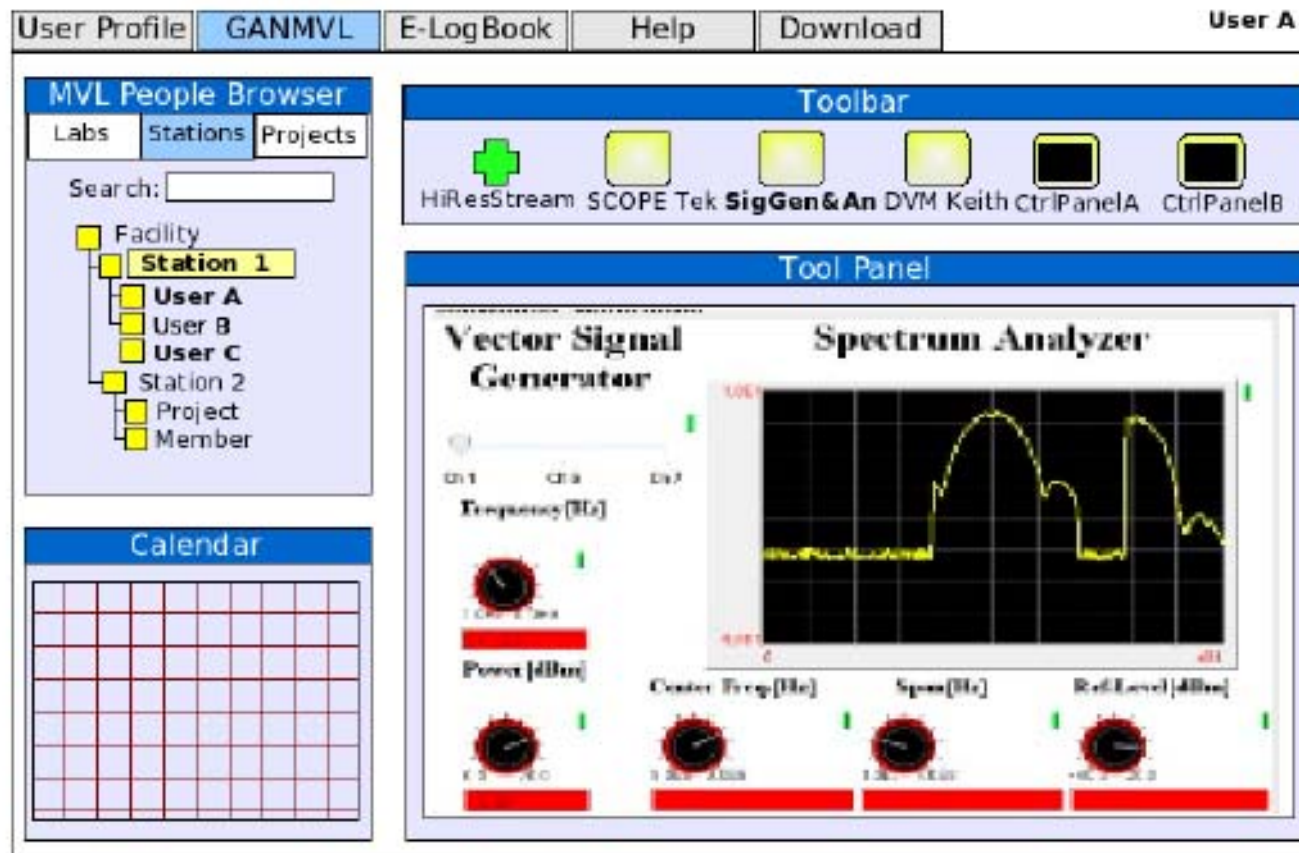
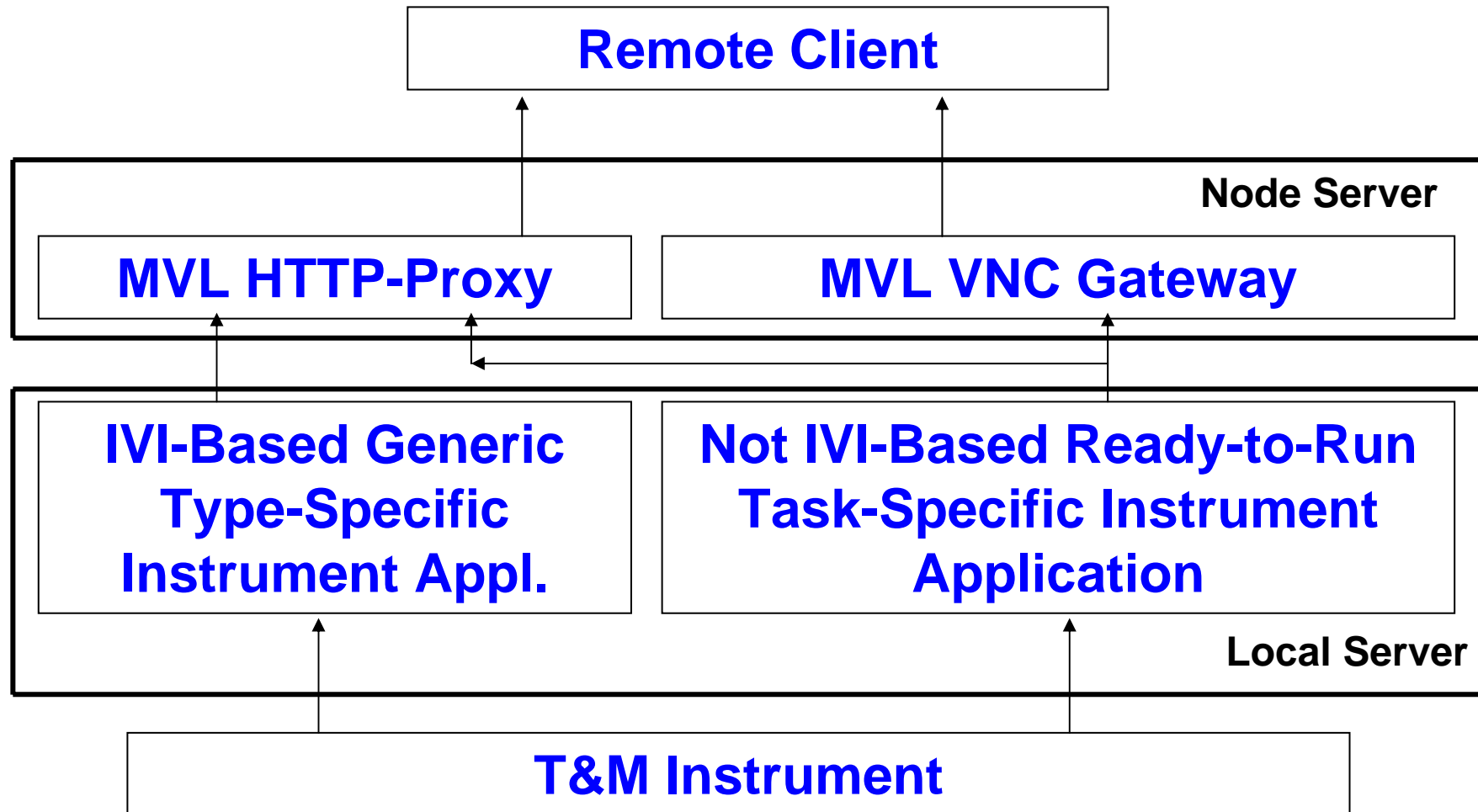


Illustration 3: view of the remote user A with user B connected on station 1 and instrument SigGen&An selected

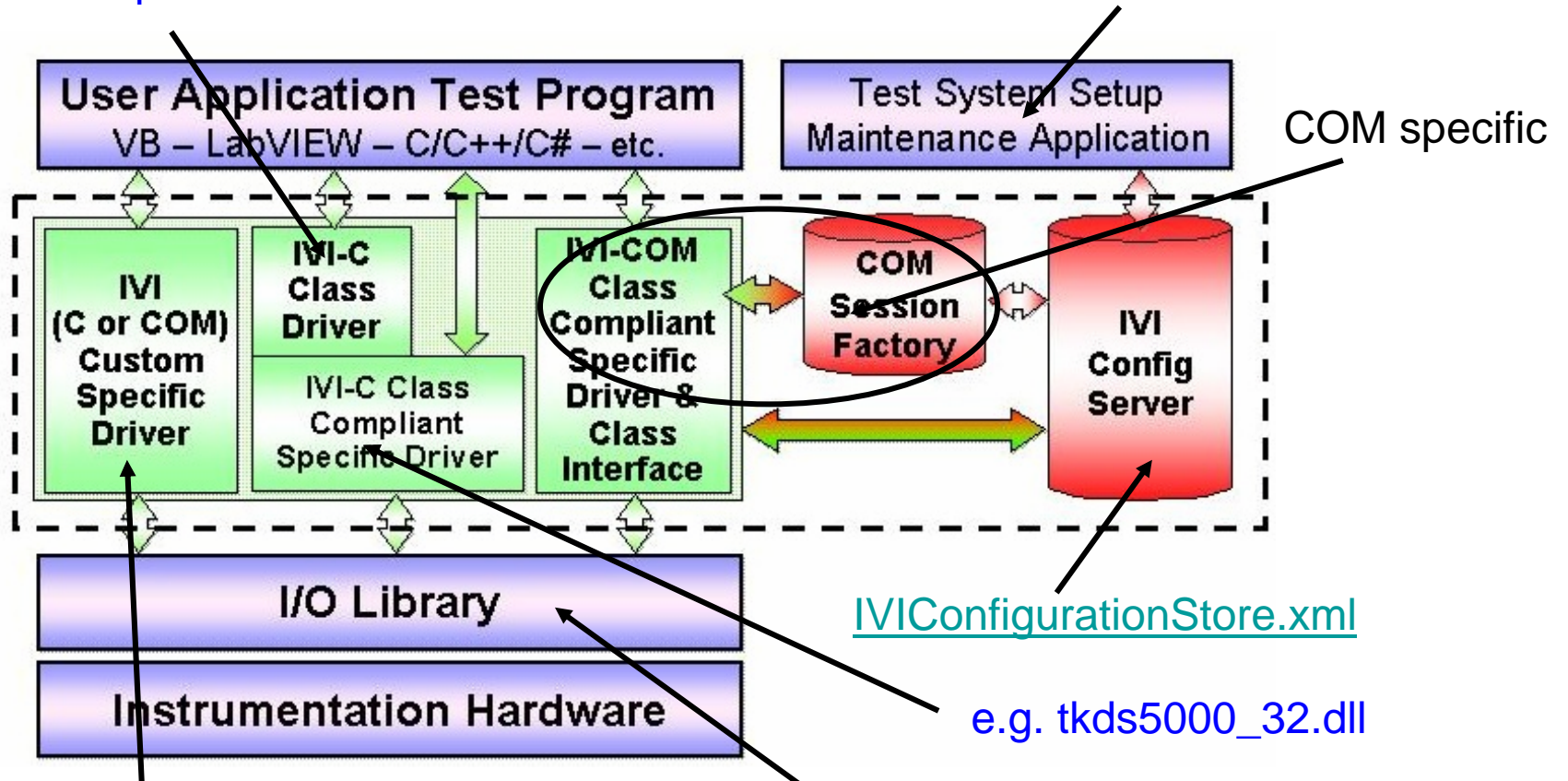
Instrument Integration into MVL



IVI Architecture

e.g. `iviscope.dll`

e.g. NI Measurement and Automation Explorer



Specific Instrument Drivers

e.g. VISA run time library

<http://mstxpseb1.desy.de/IVIscope.htm>

Three Steps

- Connect instrument to data bus
- Configure communication parameters
- Install instrument driver

IVI-Based:

- Specify interface parameters (VISA)
- Specify session parameters (IVI)

Not IVI-Based:

- Install specific VI application

- Specify application activation parameters
- Run VI application

Status

Prototype of local server + mobile client (implemented on a tablet PC)+ „downloadable“ software for remote client was supposed to be released end of May

→ Unfortunately delays (~2-3 weeks) ☹

due to problems with source of netlet software, problems with the high resolution camera and the FHI MPEG-4 software

Plans: as soon as prototype becomes available (mid-end June)

Test at HERA, GSI (Heidelberg therapy project), LHC commissioning