

Advanced training on Images Voice Data Networks



ETR300B Did@VDI+



Self-operating laboratory to deploy VDI convergence

MAIN CHARACTERISTICS

- Central cabinet :
 - SIP, RTP Voice server, HTTP, FTP Data ; Image/Video : IGMP, RTSP ...,
 - Service control LCD Interface,
- Student development workstation :
 - Voice : Basic architecture, user function configuration & installation, voice menus & mails,
 - Data : SSH et FTP server configuration & installation, HTTP, MySQL & PHP web server installation,, POP3 & SMTP mail server installation,
 - Image & Video : IPTV service installation & configuration with STB or HTPC customer, video surveillance, etc...

AREAS OF APPLICATION

- Training on IP telephone display, IP television transmission,
- Technical colleges & Universities specialized in Telecommunication Network,



The **ETR300B Did@VDI+** is a self-operating laboratory, **it is fully isolated from the Internet network**. This specific characteristic enhances five main advantages:

- Mistakes made by the Students **would not cause any damage on the School network**,
- As the Laboratory is completely isolated from outside, only the Teacher has an access to the selection of videos & images available on the HTTP& FTP server, **this eliminates all risks of intrusion into sensible sites**,
- Network wiring is carried out on a mixing panel in order to **protect the mechanical parts (connectors) of the actuators** (server, router..)
- One single LCD interface enables the « *quick wiping* » of FTP service exchange files,
- One « mirroring » port **enables the monitoring of all network exchanges**.

The Laboratory includes one ETR440B « ISP service provider ». It is constituted of one set of equipment including from 1 to 4 development workstations with : 1 cabinet with server, router, switch & STB, 1 videophone set, 1 development PC computer with Linux.

ETR340B+, « ISP » set for Did@VDI+ self-operating laboratory, including :

ETR440000, 12 Units DATA PROCESSING CABINET :

- Table-top or wall-mounted metal structure,
- Front door and locking flanks,
- Mixing panel with UTP, USB, HDMI crossbars,
- 2 U drawer,
- Electrical Panel 6 + 9 distribution outlets with differential circuit-breaker.

Optional: RVD000041, overvoltage protection, arrester.

2 x Cisco Switch 8 LAN ports :**

- Manageable,
- 8 LAN ports 10/100/1000 Mbps RJ45,
- including a port configured mirroring,
- IGMP Snooping compatible,
- Configuration backup & restoring.

1 x Cisco Router ** 4 LAN ports, 1 WAN port, Wifi :

- 4 LAN ports 10/100 Mbps RJ45
- 1 WAN port, 1 Gbs, SPI firewall,
- IGMP Snooping compatible,
- WIFI gateway,
- IP addressing : DHCP (customer & server),
- Configuration backup & restoring.



ETR340B+, « ISP » set for Did@VDI+ self-operating laboratory, continuation :

ETR441000, Did@VDI+ SERVER :

Hardware functions:

- Core2 uATX MB system board, 1xLAN, 3 x SATA, 2xDDR2
- Intel Dual Core Pentium E5700 CPU 3.0GHz 2M 65W
- 1U Active Blower w/Heatsink, 4GB HDR2 RAM 32 bits PCI Flexible Riser Card for 1 Unit
- Mini-1Unit Rack with Power Supply, DD 2"1/2 60GO SSD extractible, LCD display keyboard.

Software functions:

Linux** operating system with a set of free programs « **Astérisk****, **Apache****, etc... » for Voice, Data & Image services. Preconfigured, it ensures the following functions:

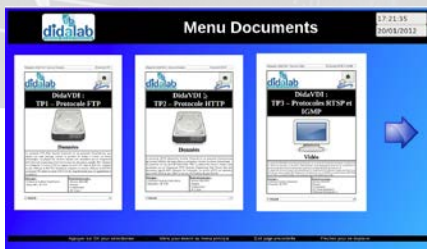


Voice Service	Data Service	Images (Video) Service	Server:
SIP account : <ul style="list-style-type: none">➤ On.➤ Off.➤ Registers state.	<ul style="list-style-type: none">➤ HTTP: On/Off.➤ FTP: On/Off.	<ul style="list-style-type: none">➤ RTSP: On/Off.➤ IGMP: On/Off.	<ul style="list-style-type: none">➤ Network inf., service state.➤ All services off.➤ Reset exchange file.➤ Server start & stop.

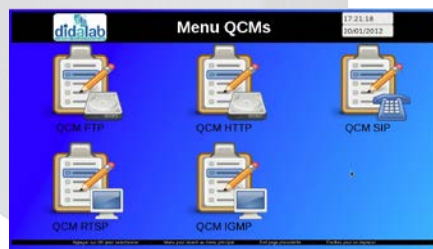
Some examples of services provided by Did@VDI+:



Video pattern of 8 channels,
duration: 1h30 each.



Set of practicals downloadable
from the server.



Training activities & MCQs with
self-corrections & automatic
assessments.

ETR340B+, « ISP » set for Did@VDI+ self-operating laboratory, continuation :

ETR451000, Did@VDI+, student server :



Hardware functions :

- Core2 μATX MB 1xGLAN, 4xSATA, 2*DDR3, 3 USB,
- Intel Dual Core Pentium E5700 CPU 3.0GHz 2M 65W,
- 1U Active Blower w/Heatsink, 4GB DDR3 RAM, mechanical DD 500 GO,
- The main board connection is on the side , this particularity facilitates the wiring.

Software functions :

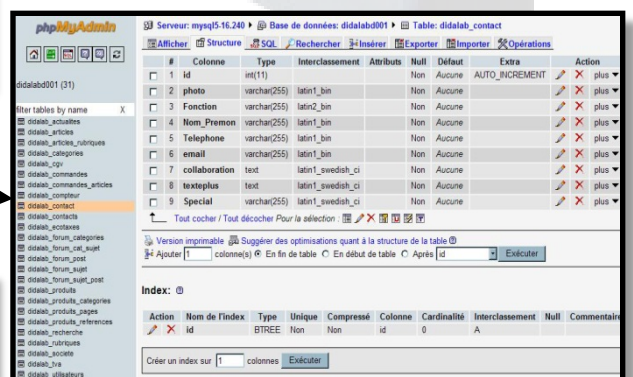
Linux working system with a set of preconfigured free programs : SSH Server, FTP server, HTTP server, IPBX server, Video-surveillance server, IPTV Server ...

Example of a welcome screen for student server, available on HTML.



Example of HTML application development

Example of MySQL basis operation



Example of PHP development

```

//shape.h
function create_Thumbnail(source,destination, thumb_width) {
    src = getimage(src(source));
    width = src.width;
    height = src.height;
    sx = 0;
    sy = 0;
    if(width > height) {
        sx = ceil((width - height) / 2);
        width = height;
    } else if(height > width) {
        sy = ceil((height - width) / 2);
        height = width;
    }
    new_image = imagecreateatcolor(thumb_width,thumb_width,
                                   0,0,0); // or "cannot initialize new GD image stream"
    destination = get_image_destination(source);
    if(extension == "jpg" || extension == "jpeg") {
        image = imagecreatefromjpeg(source);
    }
    if(extension == "gif") {
        image = imagecreatefromgif(source);
    }
    if(extension == "png") {
        image = imagecreatefrompng(source);
    }
    imagecopyresampled(new_image,image,0,0,sx,sy,thumb_width,thumb_width,width,height);
    if(extension == "jpg" || extension == "jpeg") {
        imagejpeg(new_image,destination);
    }
    if(extension == "gif") {
        imagegif(new_image,destination);
    }
    if(extension == "png") {
        imagepng(new_image,destination);
    }
}

//example.php

```

ETR370B, Pack for “Set-Top-Box / Television set” including :

- Complete set enabling the study of the Video operation on « **VOD** » (Video On Demand).
- Set-Top Box, IP/HDMI transcoder with its remote control.
- LCD Television set, full HD flat screen, built-in loud-speakers with HDMI input.
- HDMI lead, Power Supply.



ETR350B, Pack « IP Telephony, videoconference » including:



ETR350000: Videoconference telephone

- 4,3-inch LCD color screen, 1,3-Megapixel CMOS video camera, compatible with video codecs H.264, H.263.
- Supported protocols : HTTP, SIP...
- Control of 6 SIP direct lines, 2 Ethernet RJ45 ports, 10 / 100 Mbps, Wifi connection.
- 6-customer conference, hand-free Full Duplex with echo withdrawal.
- Broadband sound, 3.5 mm headphone jack.
- 1 USB 2.0 port + SD / MMC & SDHC card reader, HDMI output.
- Lift-free line connection, call number & name display.
- Off-image, call transfer, “do not disturb”, “hold”, dual call.

ETR460B, " Did@VDI+ convergence development " student pack, including :

ETR360000: Vesa Mini PC computer Linux provided with Open Office Quad-Core 1.5 GHz /2.3 GHz turbo, 1 LAN, hard disk500 GB, Ram 4 GB DDR4, Socket Mini PCI, external mains power supply provided.

Audio/video peripherals control programs installed.

Free programs installed:

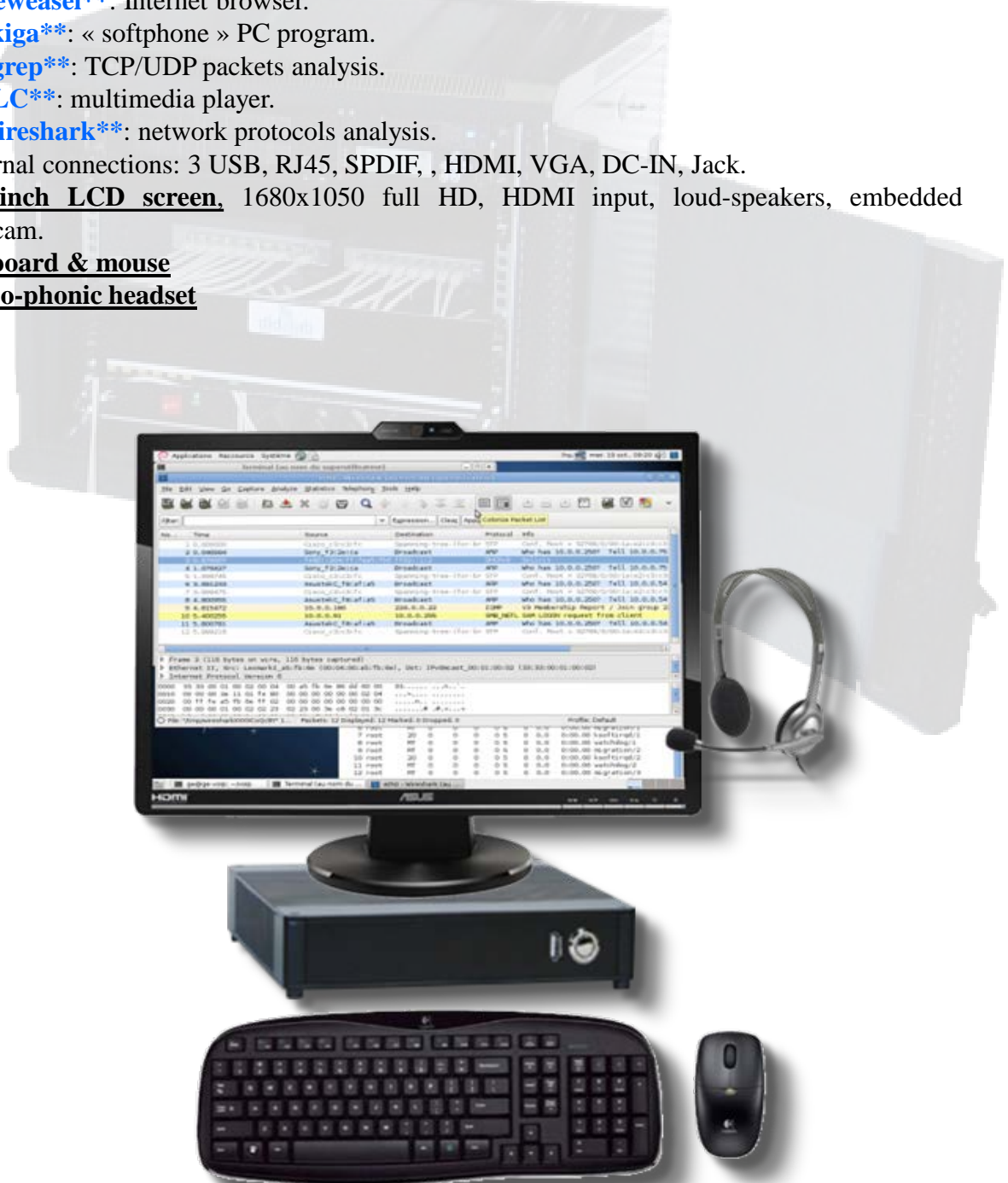
- **Nmap****: State of TCP & UDP services.
- **FTP Client****: FTP (file transfer) in command line.
- **FileZilla****: FTP (file transfer) through graphic interface.
- **Iceweasel****: Internet browser.
- **Ekiga****: « softphone » PC program.
- **Ngrep****: TCP/UDP packets analysis.
- **VLC****: multimedia player.
- **Wireshark****: network protocols analysis.

External connections: 3 USB, RJ45, SPDIF, , HDMI, VGA, DC-IN, Jack.

21,5-inch LCD screen, 1680x1050 full HD, HDMI input, loud-speakers, embedded Webcam.

Keyboard & mouse

Audio-phonetic headset



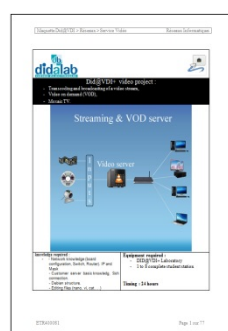
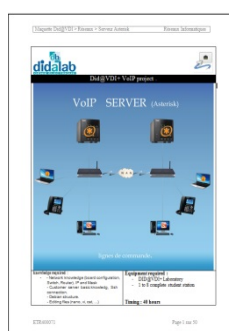
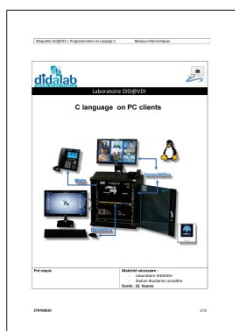
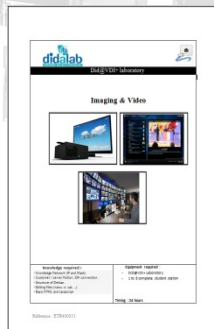
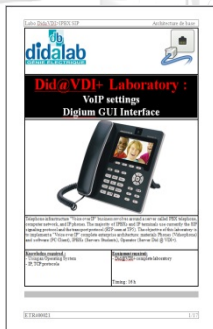
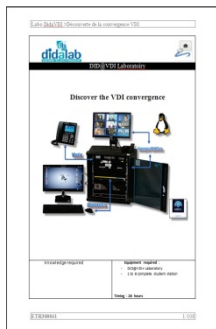
Manuals of practicals, topics :

The ETR300B Did@VDI+ laboratory is provided with a rich educational file. Indeed a very large number of documents are provided, technical files, reference manual and ten manuals of practical works. Topics are progressive, exploring the VDI convergence, VoIP settings by Digium GUI service, creation by command line, etc. ..

The provided Practical Works totalize 204 hours of PWs for a student-pair or 816 hours for the whole laboratory .

See the list below, check all the details on our website : <http://didalab.fr>

Designations, (2011 ISCED level)	PWs	Designations, (2011 ISCED level)	PWs
ETR340041 : Discovery of VDI convergence, (III, IV)	28 h	ETR400071 : VoIP server writing in command line, (VI, VII)	40 h
PW1 FTP Protocol	4 h	PW1 Asterisk configuration : SIP account management, calls, voicemail	12 h
PW2 HTTP Protocol	4 h	PW2 Trunk configuration : remote call Asterisk inter-server.	8 h
PW3 RTSP and IGMP video service protocols	4 h	PW3 Complete scenario of VoIP server.	12 h
PW4 Voice protocol, phone functions	4 h	PW4 Implementation of a control web interface	8 h
PW5 Voice, SIP and RTP Protocols.	4 h		
PW6 ARP protocol	4 h		
PW7 DHCP protocol	4 h		
ETR400021 : VoIP settings via Digium GUI, (V, VI)	32 h	ETR450021 : Linux Operating System (Debian) , (V, VI)	8 h
PW1 IPBX VoIP calls, Trunk SIP voice interconnection	16 h	PW1 Linux discovery	2 h
PW2 IPBX Phone functions	8 h	PW2 Files	2 h
PW 3 IPBX voice mail and voice menus	8 h	PW3 Process	2 h
		PW4 Scripts	2 h
ETR400031 : Imaging & Video, (V, VI)	24 h	ETR450031 : C language on client PC, (V, VI)	32 h
PW1 IPTV ,Web Video service and clients Set Top Boxes	8 h	PW1 GCC compiler	8 h
PW2 IPTV, DVR and customer service Media center	8 h	PW2 Data type	4 h
PW3 CCTV Service	8 h	PW3 Inputs/Outputs	4 h
		PW4 Tables/Structures	4 h
		PW5 Network programming (sockets)	12 h
ETR400041 : Web development (on student server), (V, VI)	40 h		
PW1 HTML	8 h		
PW2 PHP	8 h		
PW3 Creating SQL Databases/Tables, import & export rights management	8 h		
PW4 Implementation of a Website (HTML/PHP & SQL)	16 h		
Total = 124 h		Total = 80 h	



STANDARD CONFIGURATION :

ETR300B: SELF-OPERATED LABORATORY (4 pairs of students), DEVELOPMENT OF THE VDI CONVERGENCE

Reference	Designation	Qty
<u>ETR340B+</u>	<u>« ISP » Pack for Did@VDI+ self-operated laboratory, including :</u>	<u>1</u>
ETR440000	workstations + STB pre-fitted cabinet, 12 Units, locking sides & door, including : 1 shelf with (1x) 8-port switch, (1x) 4-port Cisco router, (1x) WAN, (1x) Wifi gateway, UTP leads, 1 patch panel, marked off & equipped with UTP crossbars, 1 sliding drawer, 2Units, rackable for telephone, remote control & leads storage, 1 connection block with 9+6 sockets & differential circuit-breaker, On/off, blank front panels, black colour, 1 Unit.	1
ETR441000	Did@VDI+ network emulator, SIP, HTTP, FTP server, leads, UTP, IHM drop-down menu	1
ETR451000	Student server with connection cables,	2
ETR440400	Mixing panel, bypass start, marked off by color codes, with crossbars.	1
ETR340200	Set of accessories : 10 UTP leads, 100 Ohms, 6th class, 50 cm long,	2
ETR340020	Reference document "networks"	1
ETR300041	Topics : Discover the VDI convergence	1
ETR400021	Topics : VoIP settings via Digium GUI	1
ETR400031	Topics : Imaging & Video	1
ETR400041	Topics : Web Development (on students server)	1
ETR400071	Topics : VoIP Server writing in command line	1
ETR400081	Topics : Streaming server and VOD	1
ETR450021	Topics : Linux system (Debian)	1
ETR450031	Topics : C language programming (on client PC)	1
<u>ETR370B</u>	<u>« IMAGE VIDEO TRANSPORT via TCP/IP » Pack, including :</u>	<u>1</u>
ETR370000	Set-top Box adapter, HTTP/FTP server interface to HDMI, remote control, 21.5" HD screen, (1680x1050), Qwerty USB keyboard, UTP & HDMI leads.	1
<u>ETR460B</u>	<u>Student pack "VDI convergence development" including :</u>	<u>1 to 4</u>
ETR460000	Vesa Mini PC computer with Linux, Quad-Core 1.5 GHz /2.3 GHz turbo, 1 LAN, Hard disk 500 GB, Ram 4 GB DDR4, Socket Mini PCI, Power Supply, Audio / peripheral control programs provided. 1 HD HDMI, 1680*1050, 22 inches screen, loud-speakers, embedded Webcam, 1 set of leads : UTP 5m & 2 m long, HDMI, HDMI/DVI adapter, 1 audio-ponic microphone & headset.	1
<u>ETR350B</u>	<u>Basic pack "Voice Telephony" including :</u>	<u>1 to 4</u>
ETR350000	Telephone/videophone set with IP & full-graphics color display (SIP protocol), Power Supply & UTP leads, 5m & 2m long.	1

Non contractual document

**Trademarks

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