

Эра post-РС в ВУЗах

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Altair 8800



- Introduced: January 1975
- Prices: US \$395 as a kit (prior to March) US \$650 assembled
- CPU: Intel 8080, 2.0 MHz
- RAM: 256 bytes, 64K max
- Display: front panel LEDs
- Controls: front panel switches
- Expansion: Altair-bus card-cage
- Storage: paper tape, cassette or floppy drive
- OS: CP/M, BASIC

IBM Portable PC 5100



- Introduced: September, 1975
- Price: US \$19,975 w/ 64K RAM
- CPU: IBM proprietary, 1.9MHz
- RAM: 16K, 64K max
- Display: 5" monochrome monitor
- 64 X 16 text
- Storage: Internal 200K tape (DC300)
- Ports: tape / printer I/O port
- OS: APL and/or BASIC

Commodore PET



- Release date January 1977
- Operating system Commodore BASIC 1.0 ~ 4.0
- CPU MOS Technology 6502 @ 1 MHz
- Storage capacity cassette tape, 5.25" floppy, 8" floppy, hard disk
- Memory 4 — 96 kB
- Display 40×25 or 80×25 text
- Graphics monochrome character graphics

Apple II



- Available: June 1977
- Price: US \$1298 with 4K RAM
- US \$2638 with 48K RAM
- CPU: MOS 6502, 1.0 MHz
- RAM: 4K min, 48K max
- Display: 280 X 192, 40 X 24 text
- 6 colors maximum
- Ports: composite video output
- cassette interface
- 8 internal expansion slots
- Storage: generic cassette drive
- external 143K floppy (1978)
- OS: Woz Integer BASIC in ROM
-

TRS-80



- Released: August 1977
- Price: US \$599.95 (with monitor)
- How Many: 200,000 (1977-1981)
- CPU: Zilog Z-80A, 1.77 MHz
- RAM: 4K, 16K max*
- Ports: Cassette I/O, video,
- Expansion connector*
- Display: 12-inch monochrome monitor
- 64 X 16 text
- Expansion: External Expansion Interface*
- Storage: Cassette storage*
- OS: BASIC in ROM

Atari 800



- Released: November 1979
- Price : US \$999.95
- CPU: MOS 6502, 1.8MHz
- RAM: 8K base, 48K max
- Display: 24 X 40 text
- 320 x 192 monochrome
- 160 x 96 with 128 colors
- Expansion: 4 internal expansion slots
- 2 cartridge slots
- Ports: 4 controller ports
- RGB video output
- TV video output
- Storage: external 90K floppy drive
- cassette recorder
- OS: Atari OS

Commodore VIC-20



- Released: January 1981
- Price: US \$299
- CPU: MOS 6502, 1MHz
- RAM: 5K (3.5K for the user)
- Display: 22 X 23 text
- 176 X 184, 16 colors max
- Ports: composite video
- joystick, cartridge, user port
- serial peripheral port
- Peripherals: cassette recorder
- printer, modem
- external floppy drive
- OS: ROM BASIC

IBM Personal Computer (PC)



- Released: September 1981
- Price: US \$1,565 ~ \$3,000
- CPU: Intel 8088, 4.77MHz
- RAM: 16K, 640K max
- Display: 80 X 24 text
- Storage: dual 160KB 5.25-inch disk drives
- Ports: cassette & keyboard only
- 5 internal expansion slots
- OS: PC-DOS v1.0

GRiD Compass 1101



- Released: 1982
- Price: US\$8150
- Weight: 10 lbs, 12 oz
- CPU: Intel 8086 @ 8MHz (?)
- RAM: 256K DRAM
- Display: 6-inch electroluminescent
- 80 x 24 text
- 320 x 240 graphics
- Ports: RS-232/422 serial
- GPIB parallel port
- Storage: internal 384K bubble RAM
- external floppy drive(s)
- OS: GRiD OS

Sinclair ZX Spectrum



- Released: 1982 (UK)
- Price: £ 125
- How many: ~60,000
- CPU: Zilog Z80A @ 3.5MHz
- RAM: 16K
- Display: 32 x 24 text (8 colors)
 - 256 x 192 graphics
- hooks to TV
- Ports: memory, cassette, TV
- Peripherals: Sinclair thermal printer
- OS: Sinclair BASIC in ROM

IBM PC/XT (model 5160)



- Release date March 8, 1983
- Price \$7,545.00
- Operating system IBM BASIC / PC DOS 2.0-3.20 / SCO Xenix
- CPU Intel 8088 @ 4.77 MHz
- Memory 128-640 kB

Sinclair QL (Quantum Leap)

- Released: January 1984
- Price: \$570
- CPU: Motorola 68008 @ 7.5MHz
- RAM: 128K
- Display: text: 25 lines of 85 chars
- 256 X 256, 8 colors
- 512 X 256, 4 colors
-
- Ports: 2 network, 1 ROM,
- 2 serial, 2 video (RGB, RF),
- 2 controllers, system bus
- Storage: 2 internal 128K tape drives
- OS: Qdos / SuperBASIC in ROM



Model 5170 IBM PC AT (Advanced Technology)



Release date 1984

- Operating system PC-DOS 3.0 and later, OS/2 1.x
- CPU Intel 80286 @ 6 and 8 MHz
- Memory 256 KB ~ 16 MB
- Price Approximately \$6,000 base
- Number Produced Hundreds of Thousands+

Apple Macintosh M0001



- Introduced: January 1984
- Price: US\$2495
- CPU: Motorola 68000, 7.83 Mhz
- RAM: 128K, later 512K
- Display: 9-inch monochrome screen
- 512x342 pixels
- Ports: Two DB9 serial ports
- Printer port
- External floppy port
- Storage: Internal 400K SSDD floppy
- optional external floppy (\$495)
- OS: Macintosh GUI (graphical user interface)

Commodore Amiga 1000



- Ship Date: July 1985
- Price: US \$1295 without monitor
- US \$1790 with RGB monitor
- CPU: Motorola 68000 @ 7.14 MHz
- RAM: 256K stock, 8Meg max.
- Display: 16 colors at 640 X 400
- 4096 colors at 320 X 200.
- Ports: Parallel, serial, floppy
- RGB, RF, composite video
- Stereo audio, joysticks
- System bus
- Storage: Internal 880K 3.5-inch floppy.
- OS: AmigaDOS 1.0-1.34
- "Workbench" GUI

Toshiba T1100



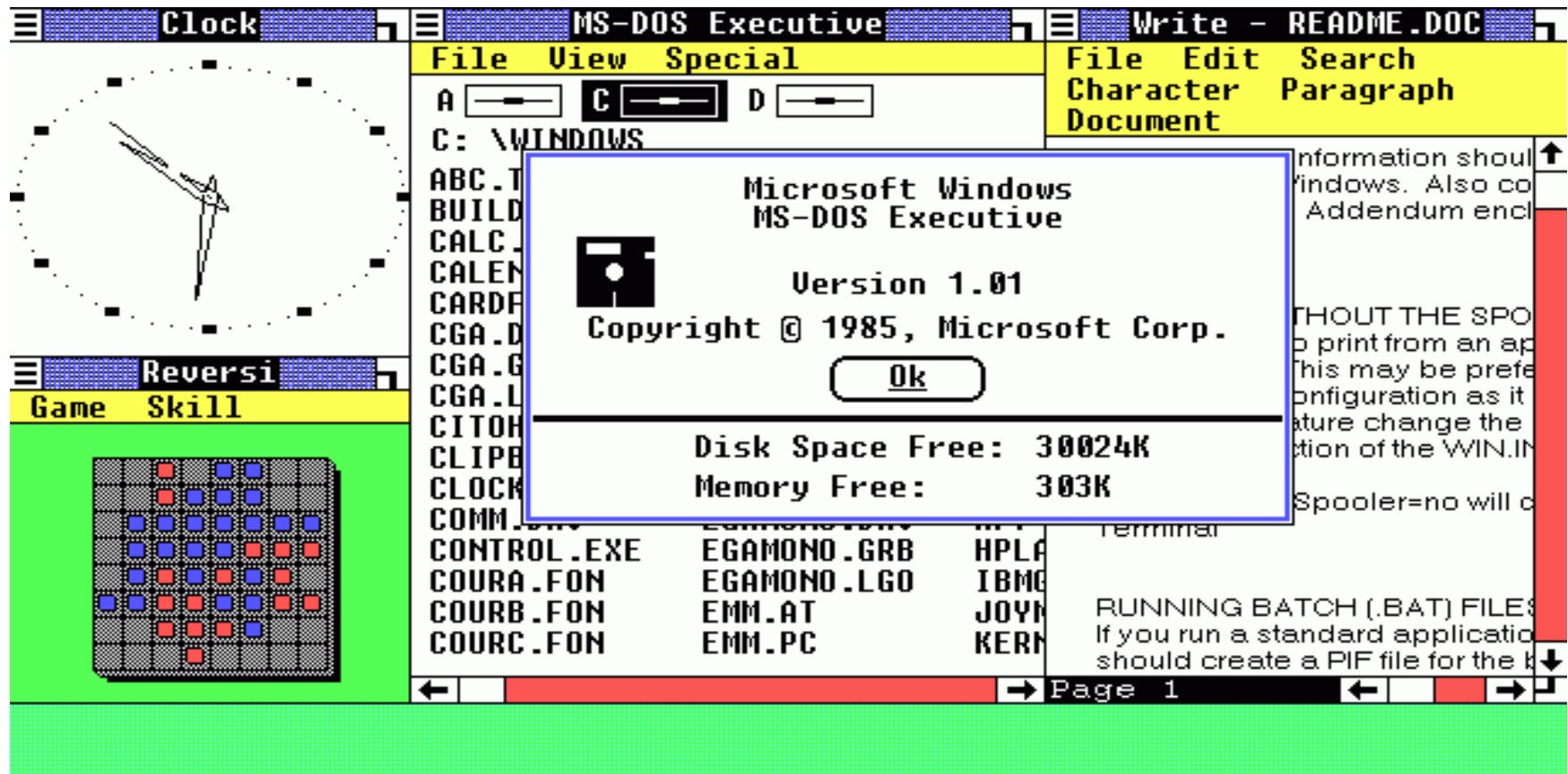
- CPU Intel 80C88, 4.77 MHz
- RAM 256 KB, upgradable to 640 KB
- Keyboard 83 keys, QWERTZ (German version)
- Drives internal 3,5" floppy drive, 720 KB; external 5,25" floppy drive, 360 KB
- Operating System MS-DOS 2.11
- Screen Resolution Graphic mode: 640×200; Text mode: 80×25
- Weight 4.1 kg
- Price \$1899
- manufactured by Toshiba in 1985

Intel 80386



- Produced From 1985 to September 2007
- Common manufacturer(s) Intel AMD IBM
- Max. CPU clock rate 12 MHz to 40 MHz
- Min. feature size 1.5 μ m to 1 μ m
- Instruction set x86 (IA-32)

Windows 1.0



Аппаратные требования

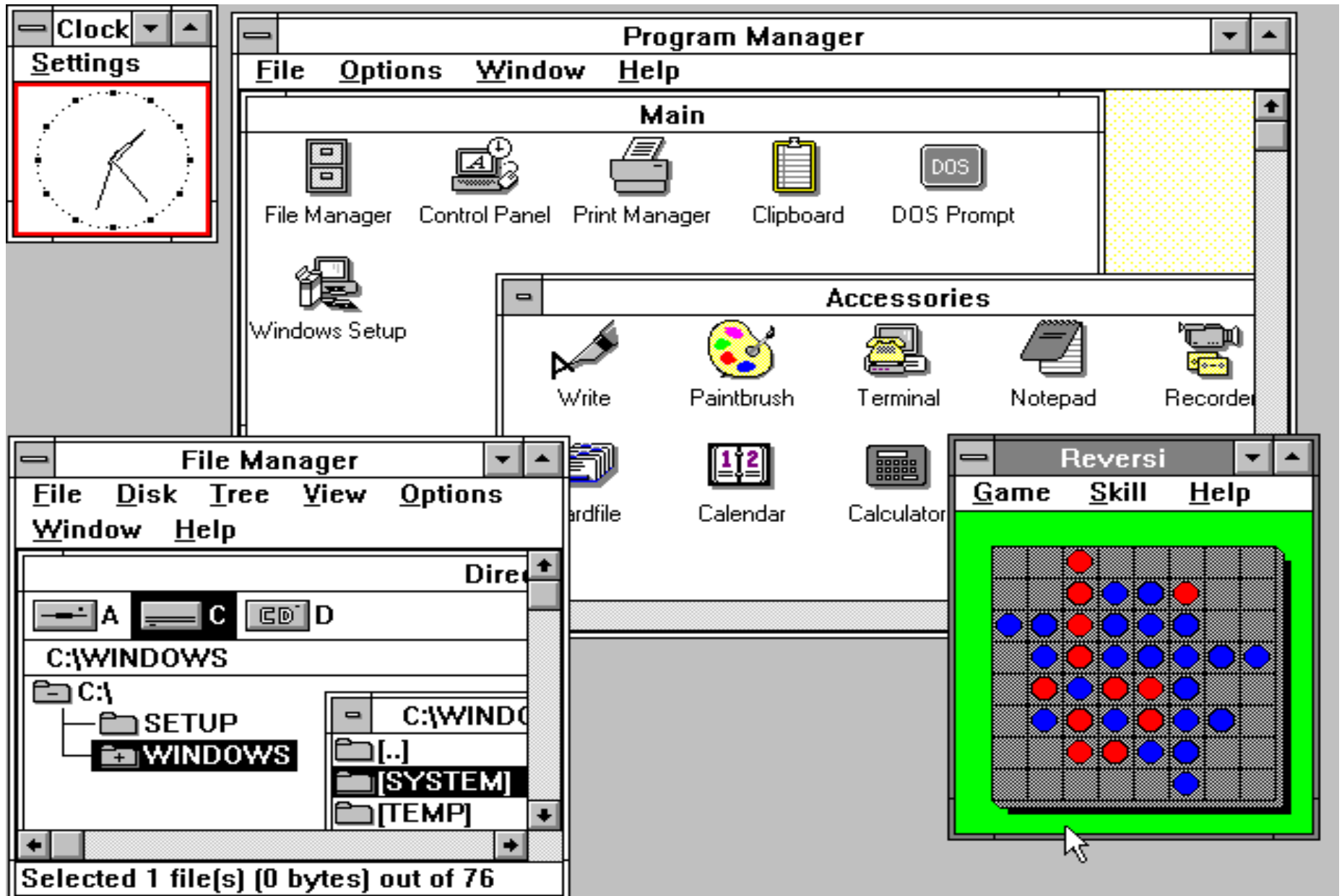
- ОЗУ 256 КБ
- Видеоадаптер CGA/Hercules/EGA или совместимый
- Жёсткий диск или 2 дисководов
- Другие приводы Дисковод
- MS-DOS 2.0

GRiDPad



- Released: October 1989
- Price: US\$2,370
- Weight: 4.5 lbs / 2 kg
- CPU: Intel 80C86 @ 10MHz
- RAM: 1MB internal
- Display: 10-inch LCD; 80 x 24 text
- 640 x 400 graphics
- Ports: RS-232, keyboard
- Storage: Two RAM card slots
- OS: MS-DOS 3.3 built in

Windows 3.0



Wintel

маркетинговый термин, сокращение, образованное слиянием слов Windows и Intel, которое обозначает персональный компьютер, использующий центральный процессор с x86-совместимой микроархитектурой и операционную систему семейства Microsoft Windows. Термин «Wintel» используется в основном для описания монополистических действий, предпринимаемых компаниями Microsoft и Intel для достижения доминирования на рынке

Apple Newton

- Available: August 1993
- Price: US \$699.99
- CPU: ARM 610 (RISC) @ 20 MHz
- RAM: 640K internal, 4MB PCMCIA
- Display: 336 x 240 reflective LCD
- Interface: touch-screen w/ stylus
- Ports: RS422 serial, Infrared
- Expansion: one PCMCIA (Type II) slot
- OS: Newton OS v1.05



Network Computer Reference Profile

The minimum hardware requirements were:

Java Applets & Applications

Graphical User Environment

**NCOS or
JavaOS** **Java Virtual Machine**

Non-Specific Hardware Platform

- minimum screen resolution of 640 x 480 (VGA) or equivalent
- pointing device
- text input ability
- audio output

Acorn Network Computer

- 32-bit processor 40 MHz
ARM 7500FE
- 8-32 MB RAM
- 4-8 MB ROM for NC OS
- Removable ROM card
- Web browser
- Word processor MS Word
7 binary compatible
(import/export)



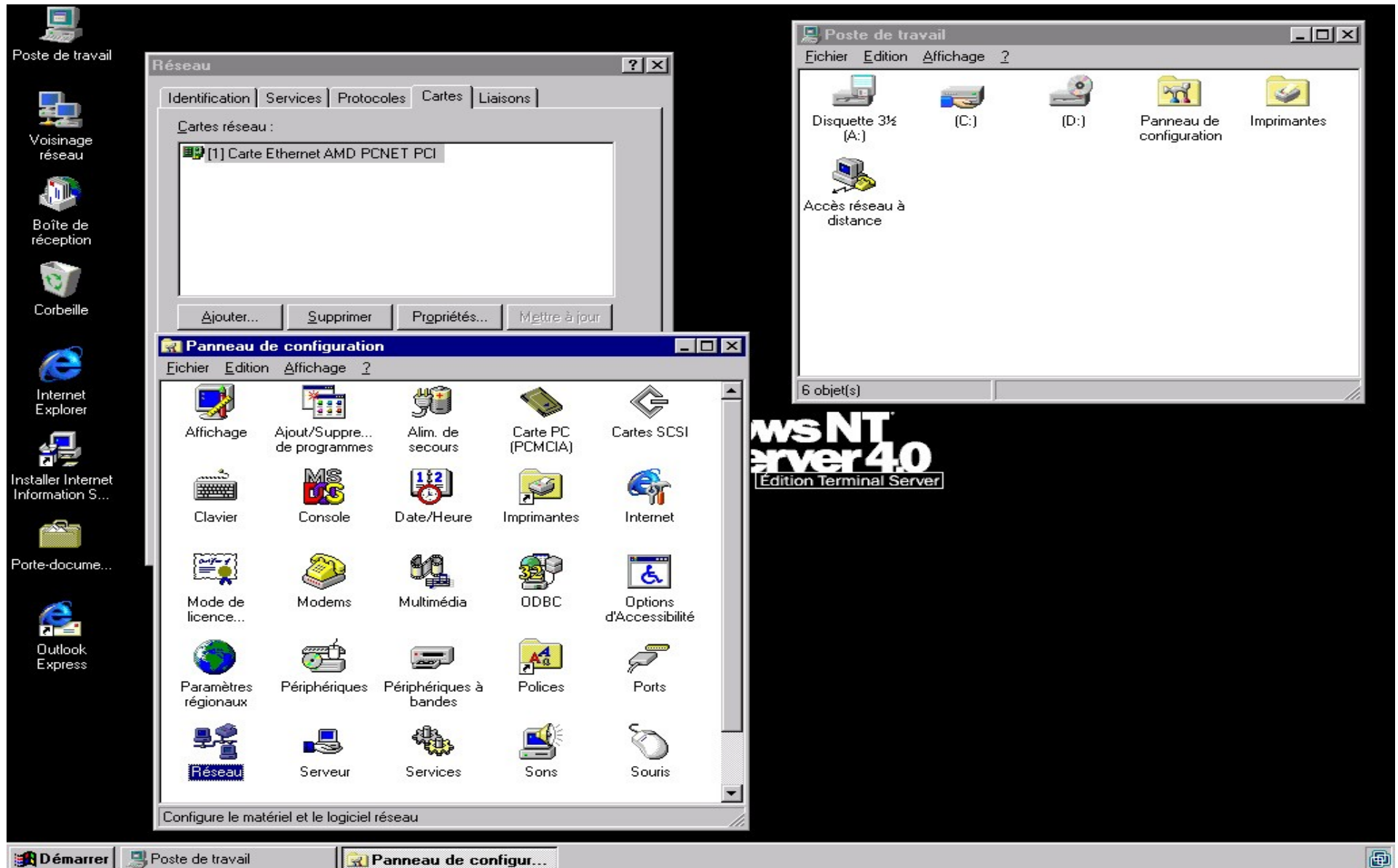
Mac NC



Macintosh NC



Windows NT 4.0 Terminal Server Edition (1998)

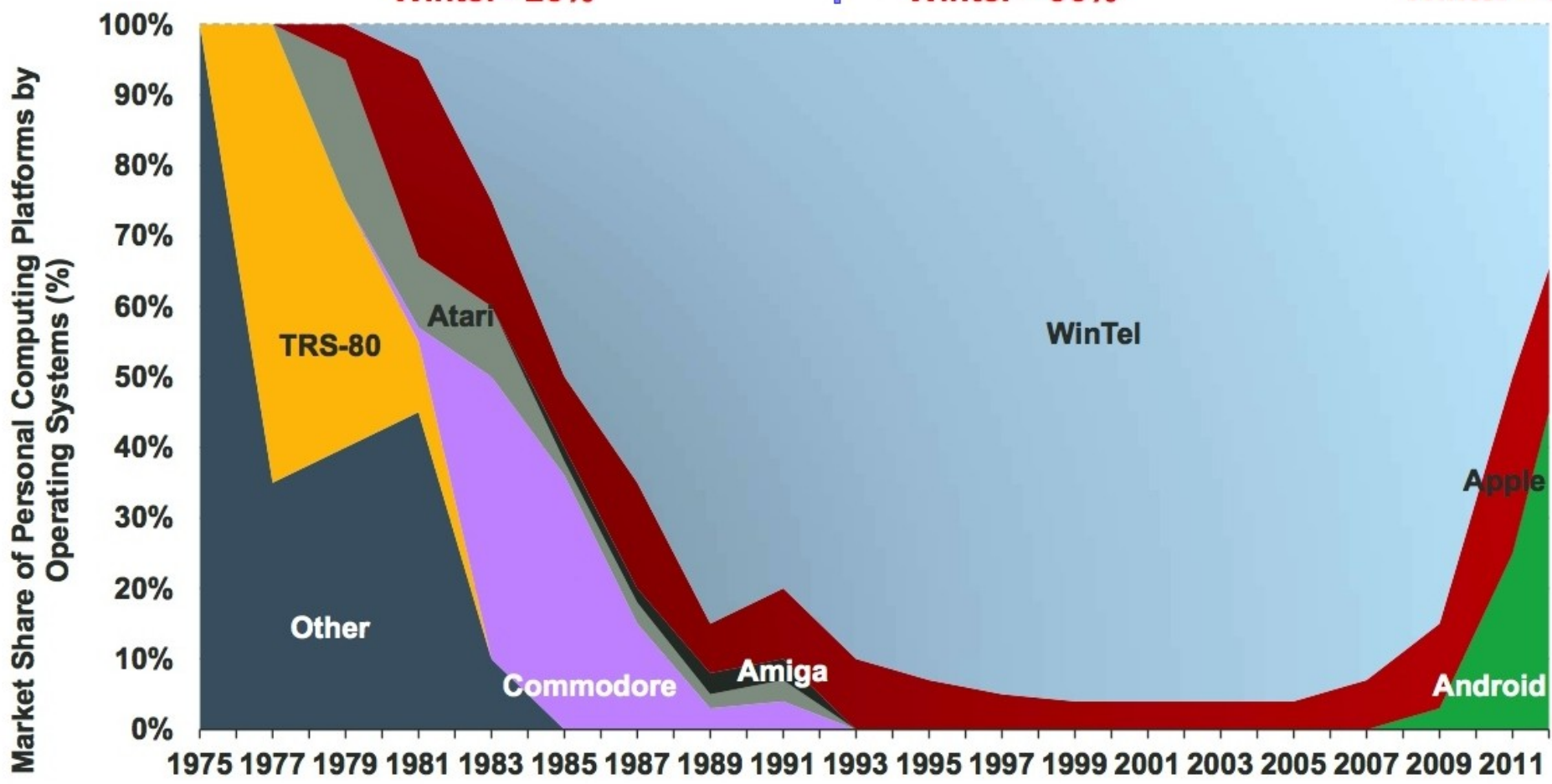


Global Market Share of Personal Computing Platforms by Operating System Shipments, 1975 – 2012E

1983
Wintel - 25%

1998 – 2005
Wintel – 96%

2012E
Wintel – 35%

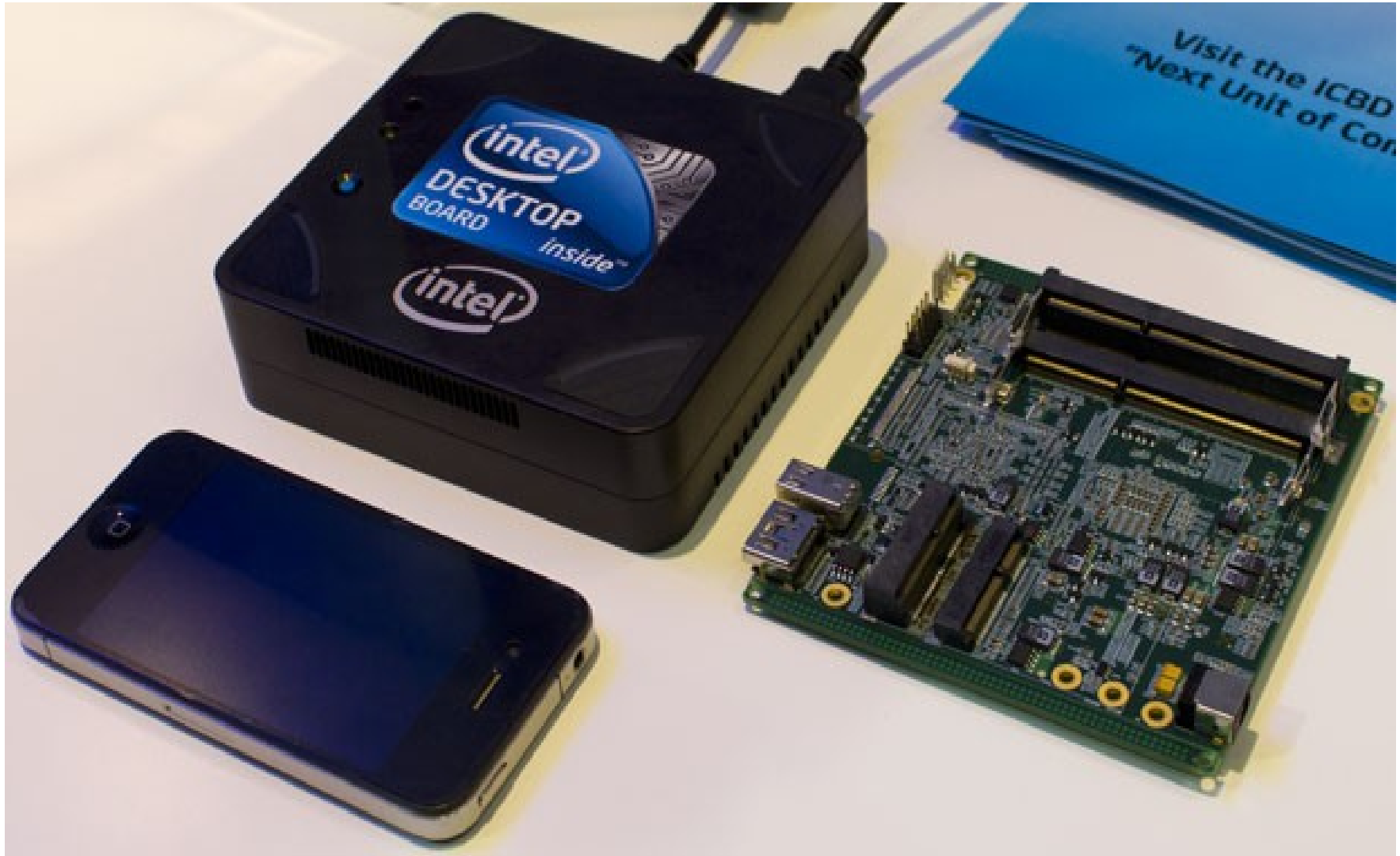


эра post-PC

*это эра многообразия форм компьютерных систем, в которой произойдёт освобождение рабочего места от привязки к конкретному ПК, стоящему на столе.

* виртуальные рабочие места доступные с любого клиентского устройства

Intel® NUC



концепция BYOD

«bring-your-own-device» – «принеси собственное устройство»

использование собственных клиентских устройств в учебных или рабочих целях

К 2017 году, по прогнозу Gartner, каждый второй работник будет пользоваться собственными гаджетами в рабочих целях.





Протоколы для доступа к удалённой рабочей среде

- X11 — используется в Unix
- NX NoMachine, X2Go — протокол X11 со сжатием данных
- Virtual Network Computing
- Citrix Independent Computing Architecture (ICA)
- Remote Desktop Protocol (RDP)
- SPICE (Simple Protocol For Independent Computing Environments)








ProxmoxVE

PROXMOX Proxmox Virtual Environment
Version: 2.2-32/3089a616 You are logged in as 'grp00'

Server View Virtual Machine 9100 ('grp00ws') on node 'proxmox2' [Start](#) [Shutdown](#)

Summary **Hardware** **Options** **Backup**

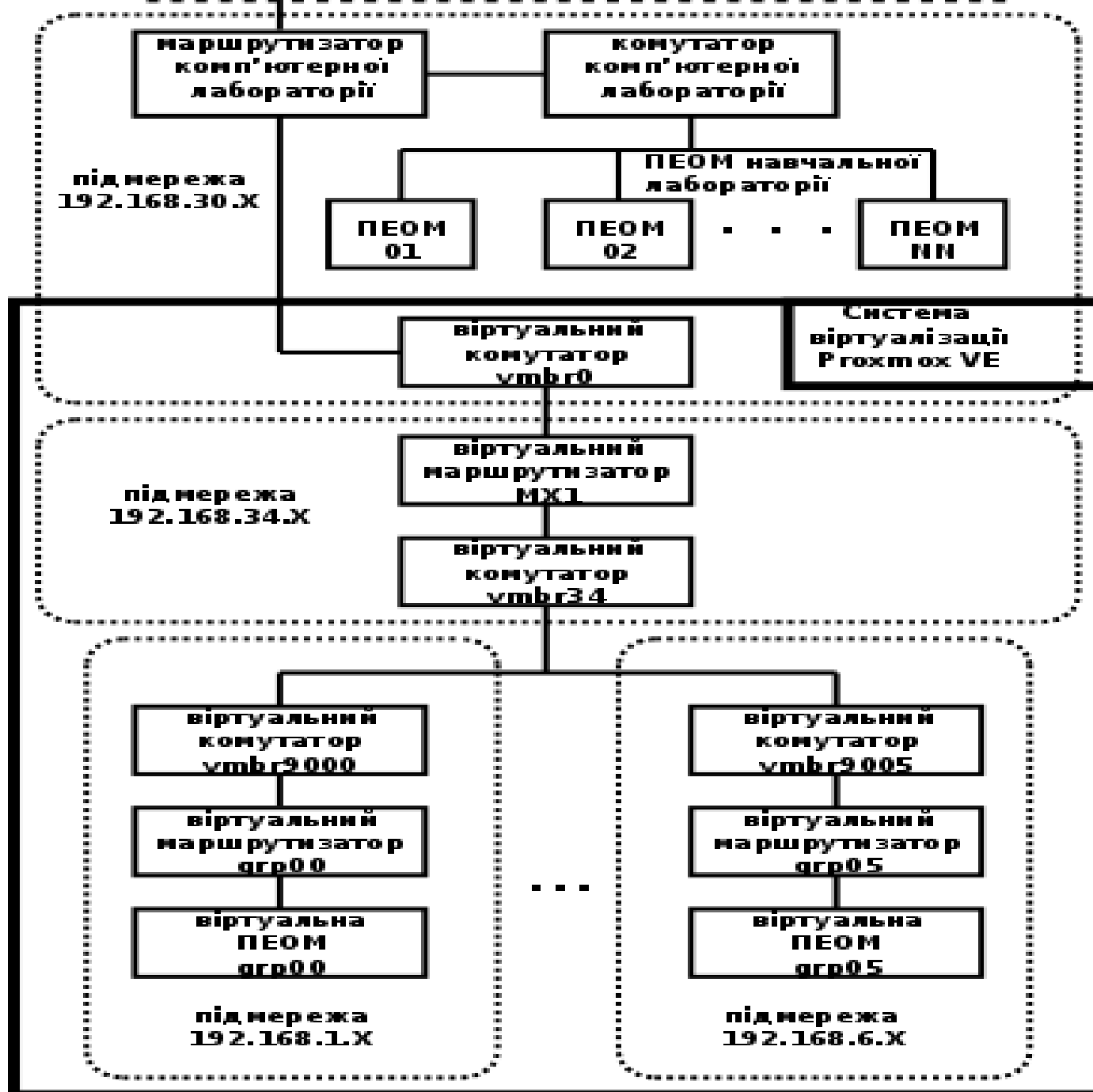
Add ▼ Remove Edit

 Keyboard Layout	Default
 Memory	128MB
 Processors	1
 Display	Default
 Hard Disk (ide0)	grp01:9100/vm-9100-disk-1.raw,size=32G
 CD/DVD Drive (ide2)	ISO2.iso/DamnSmallLinux.iso,media=cdrom,size
 Network Device (net0)	rtl8139=32:B4:6A:64:9D:12,bridge=vibr9000

Tasks **Cluster log**

Start Time	End Time	Node	User name	Description
Feb 05 17:24:33	Feb 05 17:24:34	proxmox2	grp00@pam	VM 9000 - Start

Мережа Університету



- Home
- Apps
- MyDSL
- Games
- Setup
- System
- XShells
- Help
- Find
- Run Command
- Exit

Up: 0 k/s - Down: 0 k/s

Processes: 23
CPU Usage: 3%

RAM Usage: 17.8M/124M - 14%

Swap Used: 0/238M - 0%

65464K free, 0K shrd, 2236K buff, 40764K cached

0.00 0.00 0.00 (Status: S=sleeping R=running, W=waiting)

TATUS	RSS	PPID	%CPU	%MEM	COMMAND
4624	659	0.0	3.6	dillo	
4624	669	0.0	3.6	dillo	
4376	655	0.0	3.4	Xvesa	
2000	1	0.0	1.5	dfm	
1684	1	0.0	1.3	bash	
1488	702	0.0	1.1	bash	
1404	1	0.0	1.1	aterm	
1388	655	0.0	1.0	jwm	
1068	462	0.0	0.8	startx	
1012	669	0.0	0.7	dpid	
920	1	0.0	0.7	torsmo	
896	672	0.0	0.7	file.dpi	
896	685	0.0	0.7	file.dpi	
764	704	0.0	0.6	top	
680	1	0.0	0.5	pump	
644	502	0.0	0.5	xinit	
72	0	0.0	0.0	init	
0	1	0.0	0.0	keventd	
0	1	0.0	0.0	ksoftirqd_CPU0	
0	1	0.0	0.0	kswapd	
0	1	0.0	0.0	bdflush	

```
(ttyv0)
E-pfSense (i386) on pfSense ***
-> 192.168.34.100 (DHCP)
-> 192.168.1.1

8) Shell
9) pfTop
10) Filter Logs
11) Restart webConfigurator
12) pfSense Developer Shell
13) Upgrade from console
14) Enable Secure Shell (sshd)
```

