

РОССИЙСКИЙ УНИВЕРСИТЕТ ДРУЖБЫ НАРОДОВ

Факультет физико-математических и естественных наук

Кафедра прикладной информатики и теории вероятностей

ПРЕЗЕНТАЦИЯ ПО ЛАБОРАТОРНОЙ РАБОТЕ №1

дисциплина: Информационная безопасность

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МОСКВА

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Цели и задачи

1. Приобретение практических навыков
установки операционной системы на виртуальную машину
2. Настройка минимально необходимых для дальнейшей работы сервисов

Выполнение

Последовательность загрузки ОС

```
a.polyakov@a:~ — less
[ 0.000000] Linux version 5.14.0-70.13.1.el9_0.x86_64 (mockbuild@dall-prod-builder001.bld.equ.rockylinux.org) (gcc (GCC) 11.2.1 20220127 (Red Hat
, GNU ld version 2.35.2-17.el9) #1 SMP PREEMPT Wed May 25 21:01:57 UTC 2022
[ 0.000000] The list of certified hardware and cloud instances for Red Hat Enterprise Linux 9 can be viewed at the Red Hat Ecosystem Catalog, http
og.redhat.com.
[ 0.000000] Command line: BOOT_IMAGE=(hd0,msdos1)/vmlinuz-5.14.0-70.13.1.el9_0.x86_64 root=/dev/mapper/rl-root ro resume=/dev/mapper/rl-swap rd.lvm
boot rd.lvm.lv=rl/swap rhgb quiet
[ 0.000000] [Firmware Bug]: TSC doesn't count with P0 frequency!
[ 0.000000] x86/fpu: Supporting XSAVE feature 0x001: 'x87 floating point registers'
[ 0.000000] x86/fpu: Supporting XSAVE feature 0x002: 'SSE registers'
[ 0.000000] x86/fpu: Supporting XSAVE feature 0x004: 'AVX registers'
[ 0.000000] x86/fpu: xstate_offset[2]: 576, xstate_sizes[2]: 256
[ 0.000000] x86/fpu: Enabled xstate features 0x7, context size is 832 bytes, using 'standard' format.
[ 0.000000] signal: max sigframe size: 1776
[ 0.000000] BIOS-provided physical RAM map:
[ 0.000000] BIOS-e820: [mem 0x0000000000000000-0x000000000009fbff] usable
[ 0.000000] BIOS-e820: [mem 0x000000000009fc00-0x000000000009ffff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000000f0000-0x00000000000fffff] reserved
[ 0.000000] BIOS-e820: [mem 0x0000000000100000-0x0000000000bfffff] usable
[ 0.000000] BIOS-e820: [mem 0x0000000000bfff0000-0x0000000000bfffffff] ACPI data
[ 0.000000] BIOS-e820: [mem 0x00000000fec00000-0x00000000fec00fff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000fee00000-0x00000000fee00fff] reserved
[ 0.000000] BIOS-e820: [mem 0x00000000fffc0000-0x00000000ffffffff] reserved
[ 0.000000] NX (Execute Disable) protection: active
[ 0.000000] SMBIOS 2.5 present.
[ 0.000000] DMI: innotek GmbH VirtualBox/VirtualBox, BIOS VirtualBox 12/01/2006
[ 0.000000] Hypervisor detected: KVM
[ 0.000000] kvm-clock: Using msrs 4b564d01 and 4b564d00
[ 0.000000] kvm-clock: cpu 0, msr 97201001, primary cpu clock
[ 0.000001] kvm-clock: using sched offset of 11506078585 cycles
[ 0.000002] clocksource: kvm-clock: mask: 0xffffffffffffffff max_cycles: 0x1cd42e4dffb, max_idle_ns: 881590591483 ns
[ 0.000004] tsc: Detected 3600.000 MHz processor
[ 0.000753] e820: update [mem 0x00000000-0x00000fff] usable ==> reserved
[ 0.000756] e820: remove [mem 0x000a0000-0x000fffff] usable
[ 0.000758] last_pfn = 0xbfff0 max_arch_pfn = 0x40000000
```

Выполнение

Версия ядра Linux

```
[a.polyakov@a ~]$ dmesg | grep -i "Linux version"
[    0.000000] Linux version 5.14.0-70.13.1.el9_0.x86_64 (mockbuild@dall-prod-builder001.bld.equ.rockylinux.org) (gcc (GCC) 11.2.1 20220127 (Red Hat 11.2.1-9)
, GNU ld version 2.35.2-17.el9) #1 SMP PREEMPT Wed May 25 21:01:57 UTC 2022
```

Частота процессора

```
[a.polyakov@a ~]$ dmesg | grep -i "Mhz"
[    0.000004] tsc: Detected 3600.000 Mhz processor
[    1.869399] e1000 0000:00:03:0 eth0: (PCI:33Mhz:32-bit) 08:00:27:47:a5:81
```

Выполнение

Модель процессора

```
[a.polyakov@a ~]$ dmesg | grep -i "CPU0"
[    0.040118] CPU0: Hyper-Threading is disabled
[    0.145642] smpboot: CPU0: AMD Ryzen 5 3600 6-Core Processor (family: 0x17, model: 0x71, stepping: 0x0)
```

Объем доступной оперативной памяти

```
[a.polyakov@a ~]$ dmesg | grep -i "Memory"
[    0.000963] ACPI: Reserving FACP table memory at [mem 0xbfff00f0-0xbfff01e3]
[    0.000965] ACPI: Reserving DSDT table memory at [mem 0xbfff0470-0xbfff2794]
[    0.000965] ACPI: Reserving FACS table memory at [mem 0xbfff0200-0xbfff023f]
[    0.000966] ACPI: Reserving FACS table memory at [mem 0xbfff0200-0xbfff023f]
[    0.000966] ACPI: Reserving APIC table memory at [mem 0xbfff0240-0xbfff0293]
[    0.000967] ACPI: Reserving SSDT table memory at [mem 0xbfff02a0-0xbfff046b]
[    0.001338] Early memory node ranges
[    0.004347] PM: hibernation: Registered nosave memory: [mem 0x00000000-0x00000fff]
[    0.004348] PM: hibernation: Registered nosave memory: [mem 0x0000f000-0x0000ffff]
[    0.004349] PM: hibernation: Registered nosave memory: [mem 0x000a0000-0x000effff]
[    0.004349] PM: hibernation: Registered nosave memory: [mem 0x000f0000-0x000fffff]
[    0.018243] Memory: 260860K/3145272K available (14345K kernel code, 5945K rwddata, 9052K rodata, 2548K init, 5460K bss, 163660K reserved, 0K cma-reserved)
[    0.043088] Freeing SMP alternatives memory: 36K
[    0.155986] x86/mm: Memory block size: 128MB
[    0.224529] Non-volatile memory driver v1.3
[    0.710296] Freeing initrd memory: 53964K
[    0.810121] Freeing unused decrypted memory: 2036K
[    0.810471] Freeing unused kernel image (initmem) memory: 2548K
[    0.813323] Freeing unused kernel image (text/rodata gap) memory: 2036K
[    0.813485] Freeing unused kernel image (rodata/data gap) memory: 1188K
[    1.487983] [TTM] Zone  kernel: Available graphics memory: 1521710 KiB
[    1.488119] [drm] Max dedicated hypervisor surface memory is 507904 kiB
[    1.488120] [drm] Maximum display memory size is 16384 kiB
```

Выполнение

Тип обнаруженного гипервизора

```
[a.polyakov@a ~]$ dmesg | grep -i "Hypervisor detected"
[    0.000000] Hypervisor detected: KVM
```

Тип файловой системы корневого раздела

```
[a.polyakov@a ~]$ dmesg | grep -i "file.*system"
[    0.895905] systemd[1]: Reached target Initrd /usr File System.
[    2.437333] XFS (dm-0): Mounting V5 Filesystem
[   12.873791] systemd[1]: Set up automount Arbitrary Executable File Formats File System Automount Point.
[   12.873914] systemd[1]: Stopped target Initrd File Systems.
[   12.873935] systemd[1]: Stopped target Initrd Root File System.
[   12.932769] systemd[1]: Mounting Huge Pages File System...
[   12.933623] systemd[1]: Mounting POSIX Message Queue File System...
[   12.935016] systemd[1]: Mounting Kernel Debug File System...
[   12.936514] systemd[1]: Mounting Kernel Trace File System...
[   13.089309] systemd[1]: Stopped File System Check on Root Device.
[   13.126964] systemd[1]: Starting Remount Root and Kernel File Systems...
[   13.129386] systemd[1]: Mounted Huge Pages File System.
[   13.130309] systemd[1]: Mounted POSIX Message Queue File System.
[   13.130423] systemd[1]: Mounted Kernel Debug File System.
[   13.130950] systemd[1]: Mounted Kernel Trace File System.
[   19.304720] XFS (sda1): Mounting V5 Filesystem
```

Выполнение

Последовательность монтирования файловых систем

```
[a.polyakov@a ~]$ dmesg | grep -i "mount"
[ 0.039027] Mount-cache hash table entries: 8192 (order: 4, 65536 bytes, linear)
[ 0.039033] Mountpoint-cache hash table entries: 8192 (order: 4, 65536 bytes, linear)
[ 2.437333] XFS (dm-0): Mounting V5 Filesystem
[ 12.873791] systemd[1]: Set up automount Arbitrary Executable File Formats File System Automount Point.
[ 12.932769] systemd[1]: Mounting Huge Pages File System...
[ 12.933623] systemd[1]: Mounting POSIX Message Queue File System...
[ 12.935016] systemd[1]: Mounting Kernel Debug File System...
[ 12.936514] systemd[1]: Mounting Kernel Trace File System...
[ 13.126964] systemd[1]: Starting Remount Root and Kernel File Systems...
[ 13.129386] systemd[1]: Mounted Huge Pages File System.
[ 13.130309] systemd[1]: Mounted POSIX Message Queue File System.
[ 13.130423] systemd[1]: Mounted Kernel Debug File System.
[ 13.130950] systemd[1]: Mounted Kernel Trace File System.
[ 19.304720] XFS (sda1): Mounting V5 Filesystem
[ 19.872123] XFS (sda1): Ending clean mount
```

Результаты

1. Приобретены практические навыки
установки операционной системы на виртуальную машину
2. Настроены минимально необходимые для дальнейшей работы сервисы

Список литературы

1. Методические материалы курса
2. Задание к лабораторной работе № 1

