

RouterOS in Virtual Environment

RouterOS di lingkungan Virtualisasi

presented by

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Experience :

- Mikrotik user since 2008
- Listed in Indonesian MikroTik Consultants
- Co-founder of ASTA Informatics, PT.

Certification :

- MTC[NA, TCE, RE]
- VCA-Cloud, 2Xpert

ASTA Informatics, PT.



- We are System Integrator (most our of our clients are Small-medium Business & Small-medium Enterprise)
- Provide Consulting, Installation & Services
- Already experienced with networking in wide variety of business (health, real estate, food & beverages, financial institution, manufacturing, hospitality, mining)
- More info at : www.astainformatics.com

routing the world with 
Forum MikroTik Indonesia

- Founded by Akbar Azwir
- Largest Indonesian MikroTik user forum
- User are exchange their experience solve other users problem
- 49,552 members and growing (as per Nov 2013)

Common RouterOS deployment in real world network

- RouterBOARD [mipsbe, misple, ppc, tile]



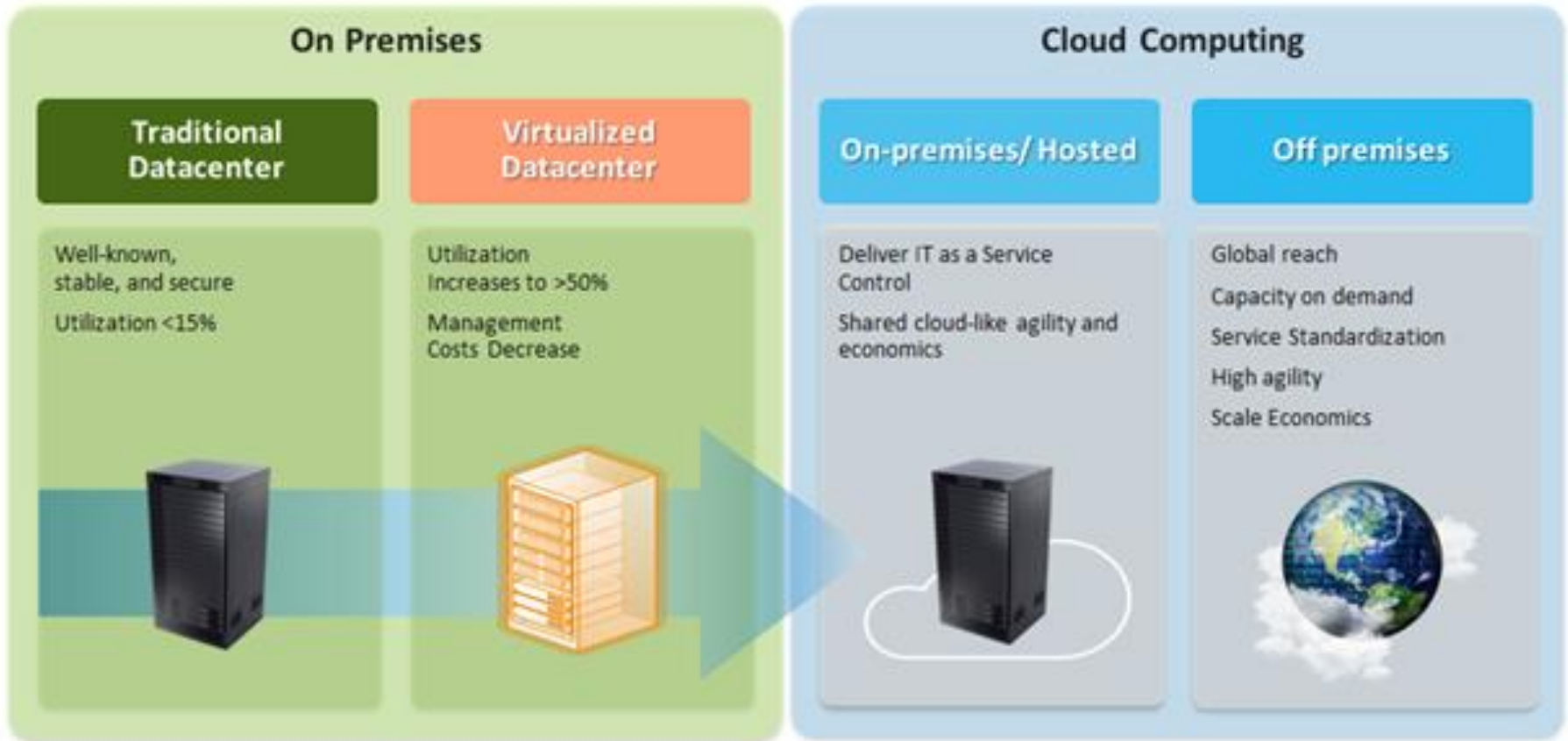
- RouterOS in x86 architecture



Welcome to the Cloud Era!

Workloads are virtualized in the x86 Architecture

Datacenter Evolution



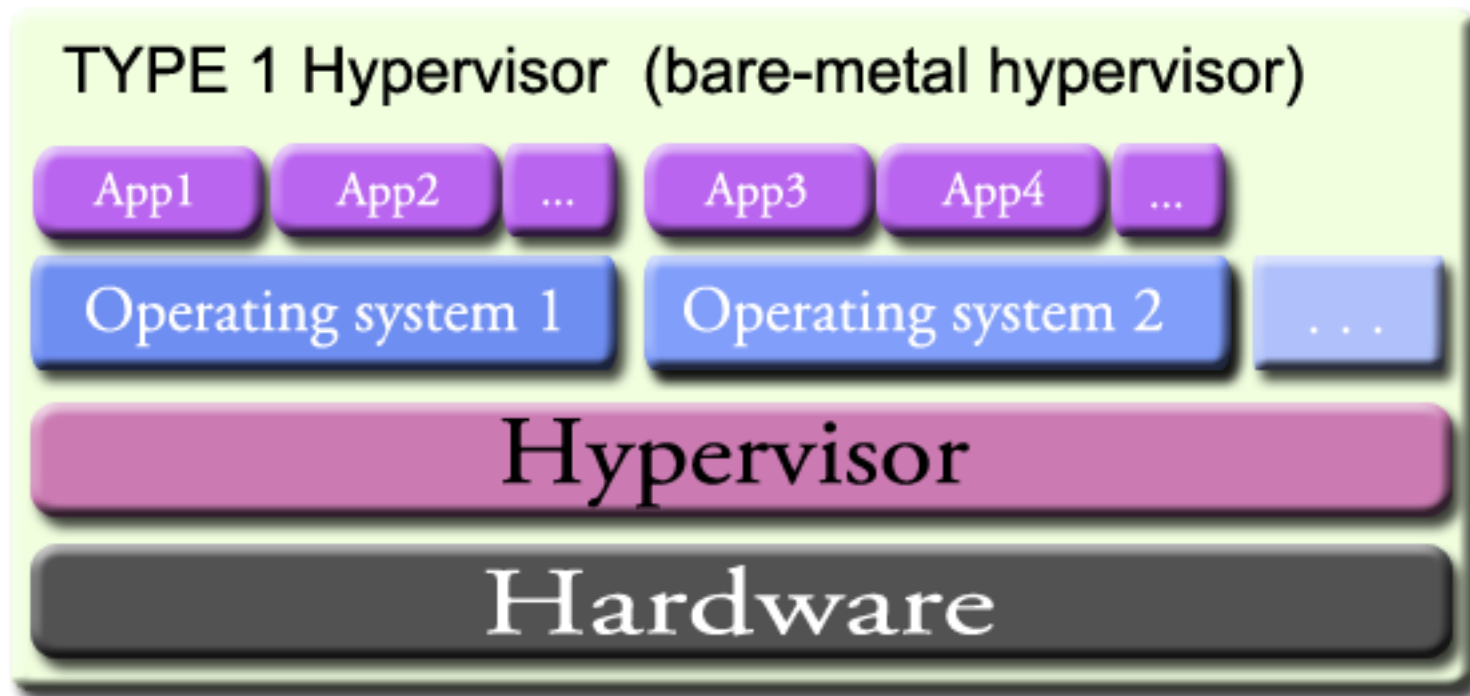
Why Virtualized?

- Faster Deployment
- Elasticity (VM can be clone, move, snapshot etc.)
- Maximum resource utilization, Save Energy.
- High Availability & Faster disaster recovery

More readings:

<http://software.intel.com/en-us/articles/the-advantages-of-using-virtualization-technology-in-the-enterprise>

Hypervisor



A hypervisor is a hardware virtualization technique that allows multiple guest operating systems (OS) to run on a single host

Running RouterOS as a VM

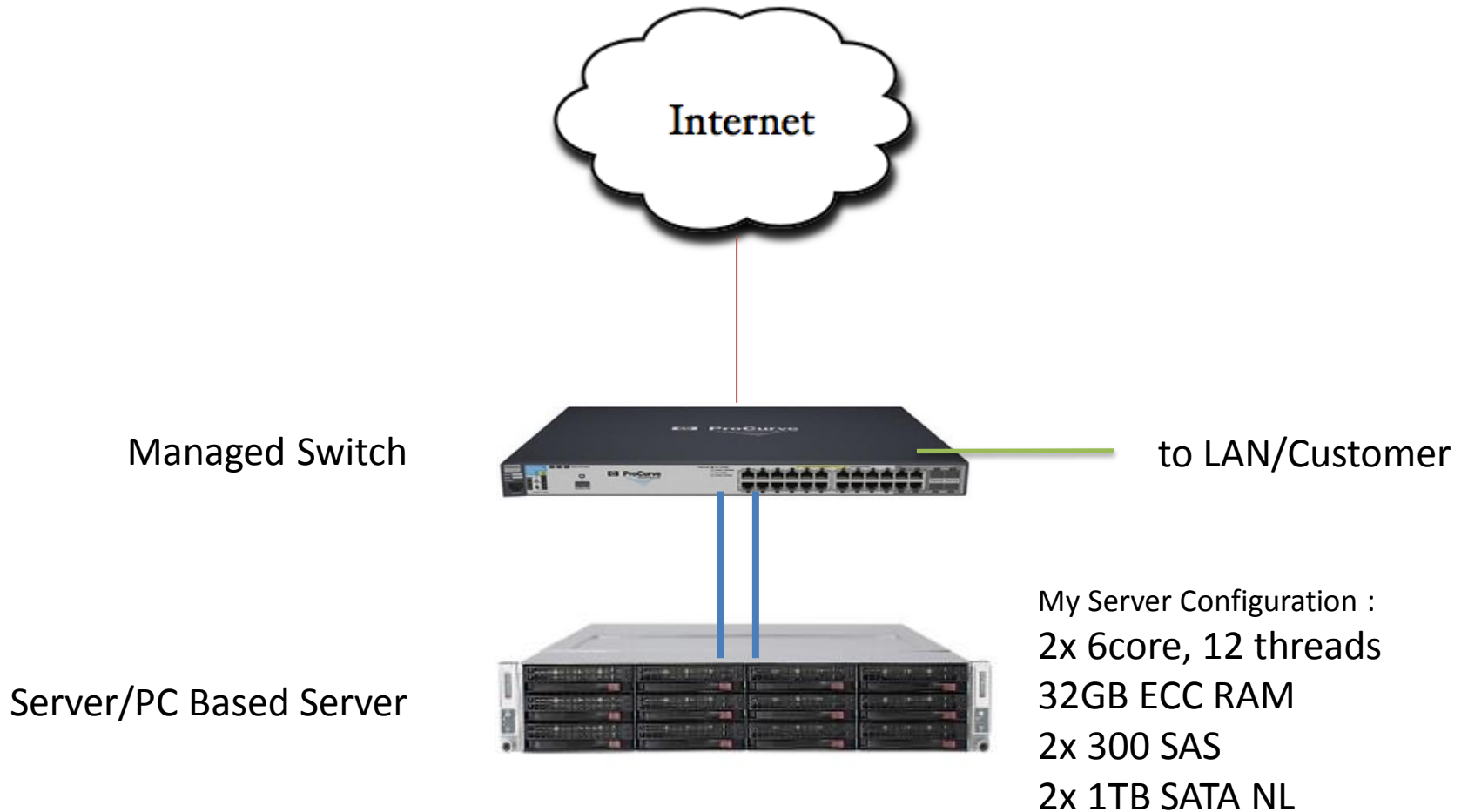
- Since MikroTik are available in x86, it can be virtualized
- Deployment & Performance Result are different for each hypervisor
- Support most of the common hypervisor available on the market today

RouterOS runs in different hypervisor

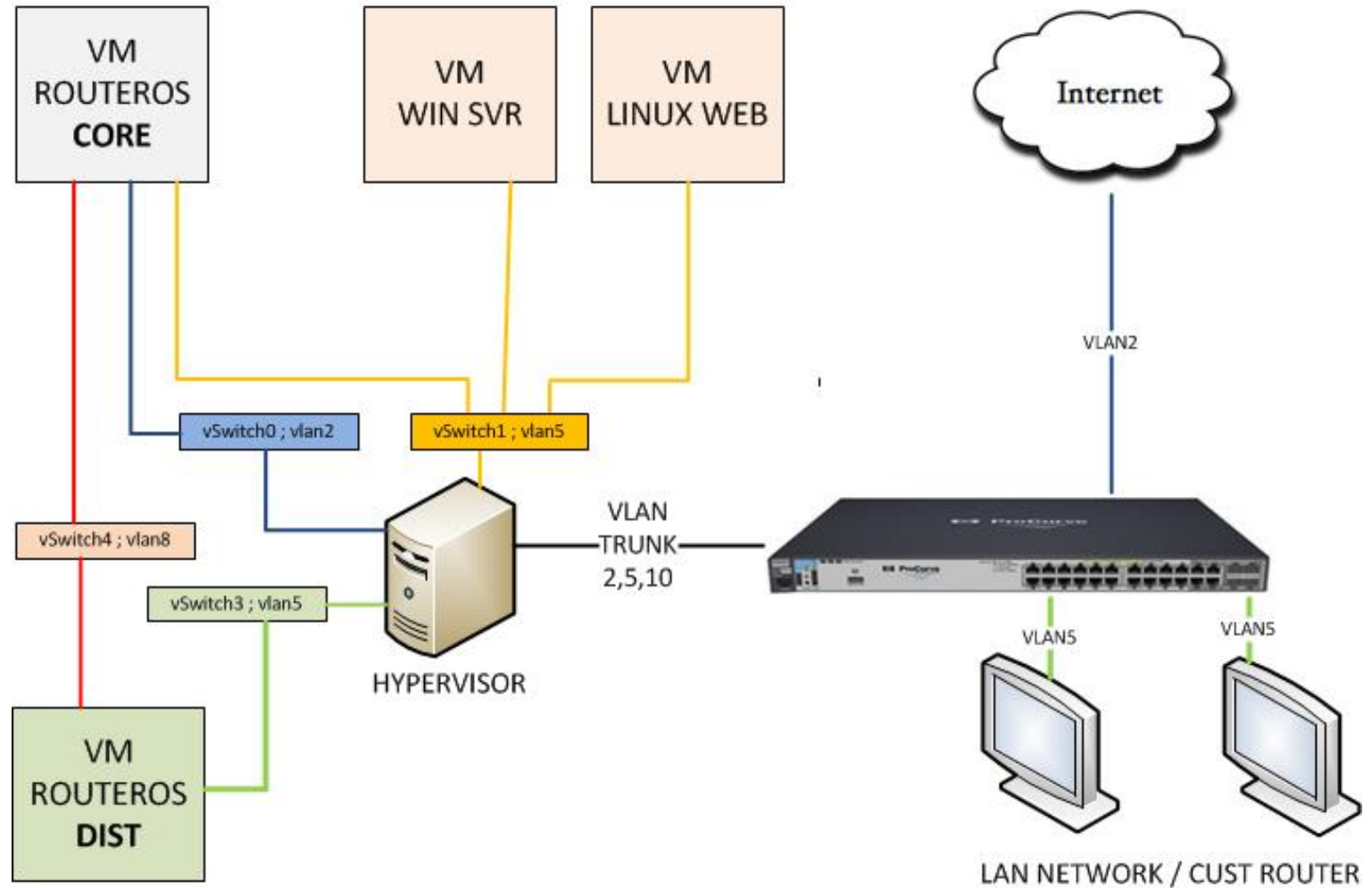
Hypervisor	Supported
ESXi (vSphere)	Yes
Hyper-V	Yes, (but Ethernet not detected)
XenServer	Yes, (but many user report problem)
KVM	Best Performance, using VirtIO

Case Study

Physical Look

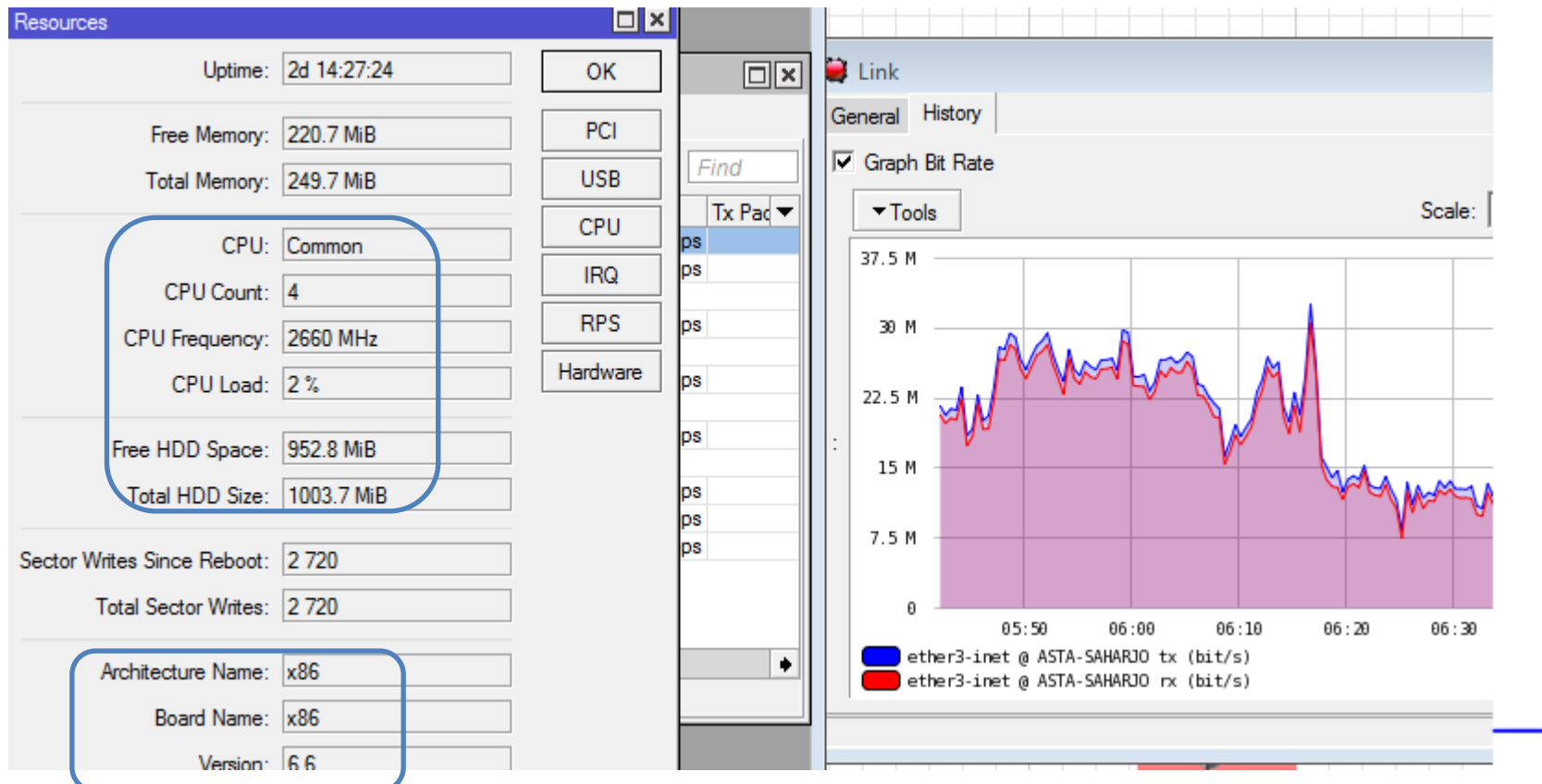
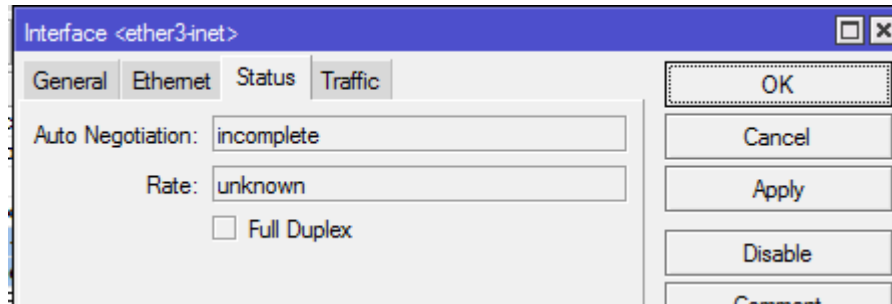


Logical Topology

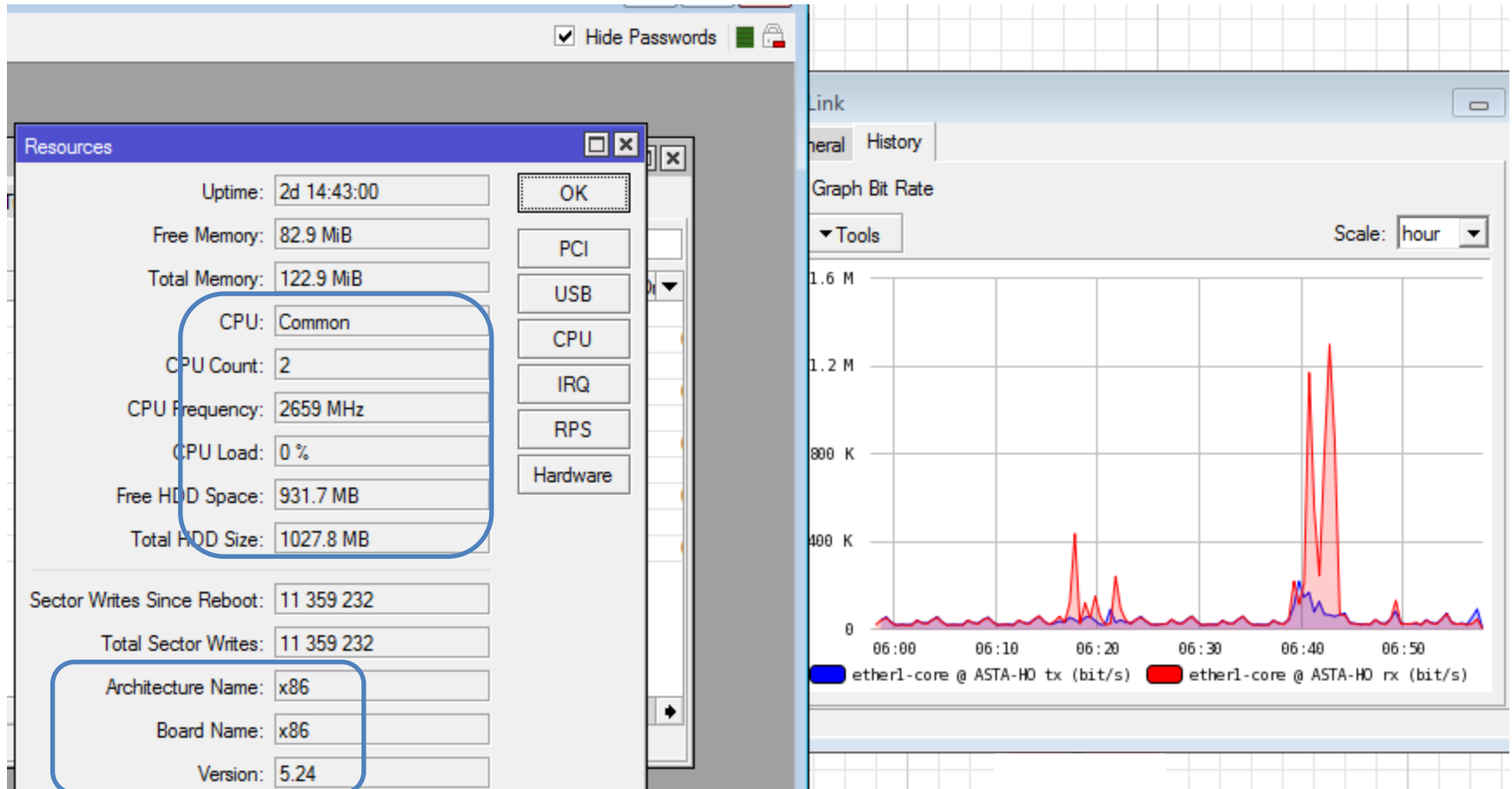


Showcase : VM CORE

VirtIO Interface Status



Showcase : VM DIST



Showcase [Another router] used for BGP Peering, Runing Well

(VR1-EDGE-EXNET) - WinBox v5.17 on x86 (x86)

Instance <ibgp>

Name: OK

AS: Cancel

Router ID: ▲ Apply

Redistribute Connected Disable

Redistribute Static Comment

Redistribute RIP Copy

Redistribute OSPF

Redistribute Other BGP Remove

Out Filter: ▼

Confederation: ▼

Federation Peers: ▲

Cluster ID: ▼

Client To Client Reflection

Ignore AS Path Length

led

Route List

Routes Nexthops Rules VRF

+ - ✓ ✗ 📄 🔍

	Dst. Address	Gateway
DAb	▶ 14.102.152.0/24	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 14.102.152.0/24	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 14.102.153.0/24	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 14.102.153.0/24	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 14.102.154.0/24	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 14.102.154.0/24	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 14.102.155.0/24	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 14.102.155.0/24	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.0.162.0/24	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.0.166.0/23	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.0.168.0/22	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.0.172.0/23	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.0.176.0/20	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.0.26.0/23	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.2.64.0/22	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.3.76.0/22	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.5.192.0/20	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.9.192.0/20	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.13.0.0/20	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.50.224.0/20	118.97.151.121 reachable e1-r0-egde-bgp
DAb	▶ 23.50.240.0/20	118.97.151.121 reachable e1-r0-egde-bgp

10433 items (1 selected)

Resources

Uptime:

Free Memory:

Total Memory:

CPU:

CPU Count:

CPU Frequency:

CPU Load:

Free HDD Space:

Total HDD Size:

Sector Writes Since Reboot:

Total Sector Writes:

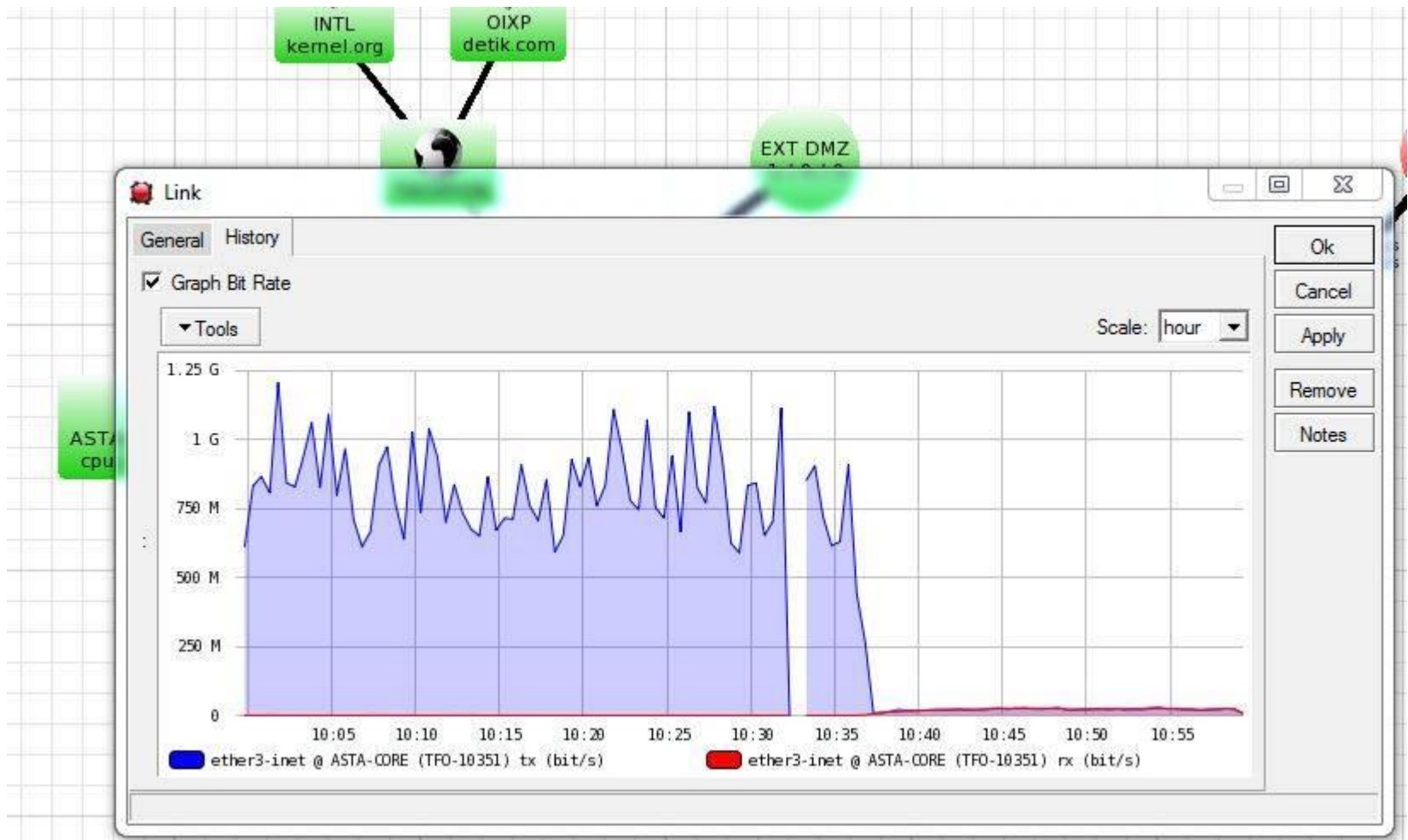
Architecture Name:

Board Name:

Version:

Showcase [Under Heavy Attack, UDP DDOS]

- VirtIO can deliver full interface traffic ~ 1Gbps
- Virtual Router still up



Conclusion

- RouterOS can run in virtual environment as production router
- Since Interface is all virtual, your network should be well documented for troubleshooting & maintenance purpose
- Linux KVM is Recommended for virtualized RouterOS workload
- VirtIO cannot display correct status but can forward at native interface speed

Any Question?

Please feel free to contact me at anytime

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