Welcome

Agenda

- Introduction of your presenters
- Case: WTC Amsterdam building network
- Why MikroTik?
- Migration path from Cisco to MikroTik
- Lessons learned

PROPER ICT

Alex van der Baan

- Service and Project management Lead at NDI (2006-2015)
- MTCNA & MTCRE
- Working with the MikroTik platform since 2007
- Responsible for the redesign and rollout of the current MikroTik backbone
- Started Proper ICT beginning of 2016
- To assist owners of commercial real estate with the challenges of integrated networking
- To educate and assist managed service providers to move core network and CPE management to MikroTik
- MikroTik distributor since May 2016

NDI ICT SOLUTIONS
AMSTERDAM • DEN HAAG • 'T GOOI

Glen Christensen

- Network Lead at NDI
- Working with the MikroTik platform since 2015...love at first sight
- Attended MUM Europe 2016 in Ljubljana
- NDI provides a broad range of ICT services, such as server and desktop support; VOIP and internet connectivity; Remote Office; online backup...
- Directing role in 17 multi-tenant commercial office buildings in the Randstand area
- 3 corporate offices (Amsterdam, Den Haag, Rotterdam), 75 employees servicing 500+ clients

MuM in the Netherlands

“As ambassadors of MikroTik we want to grow awareness and market share in NL”

Traditional vendors versus MikroTik’

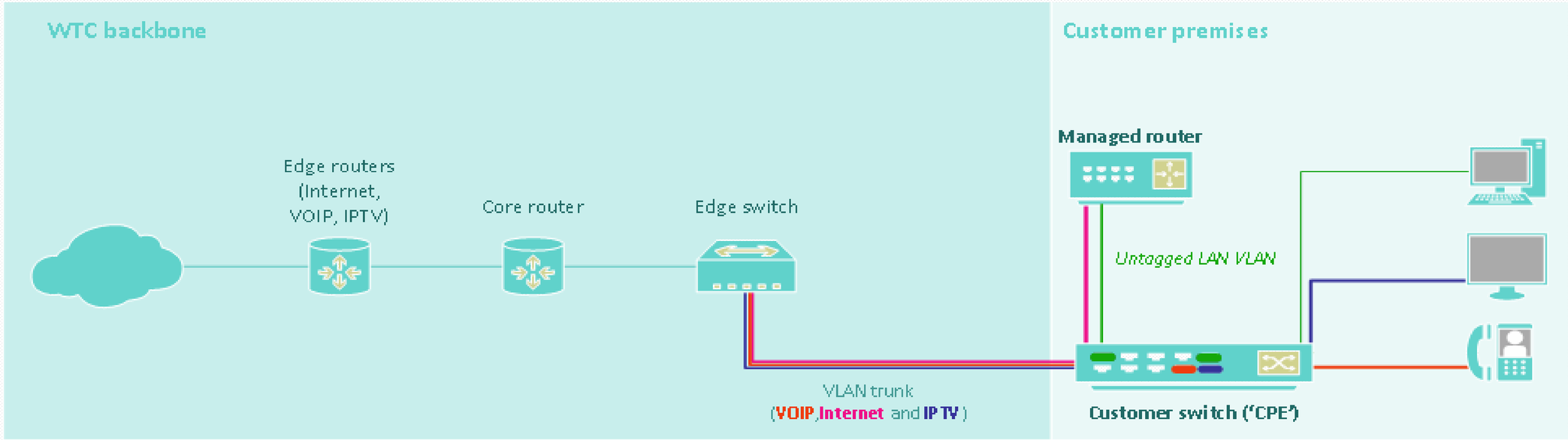
Our Case

MikroTik plays nice in corporate environments

World Trade Center Amsterdam (NDI ICT Solutions)

- 500+ clients
- International clients
- 1 network with internet, telephony & IP-TV

Legacy Backbone



Design Goals

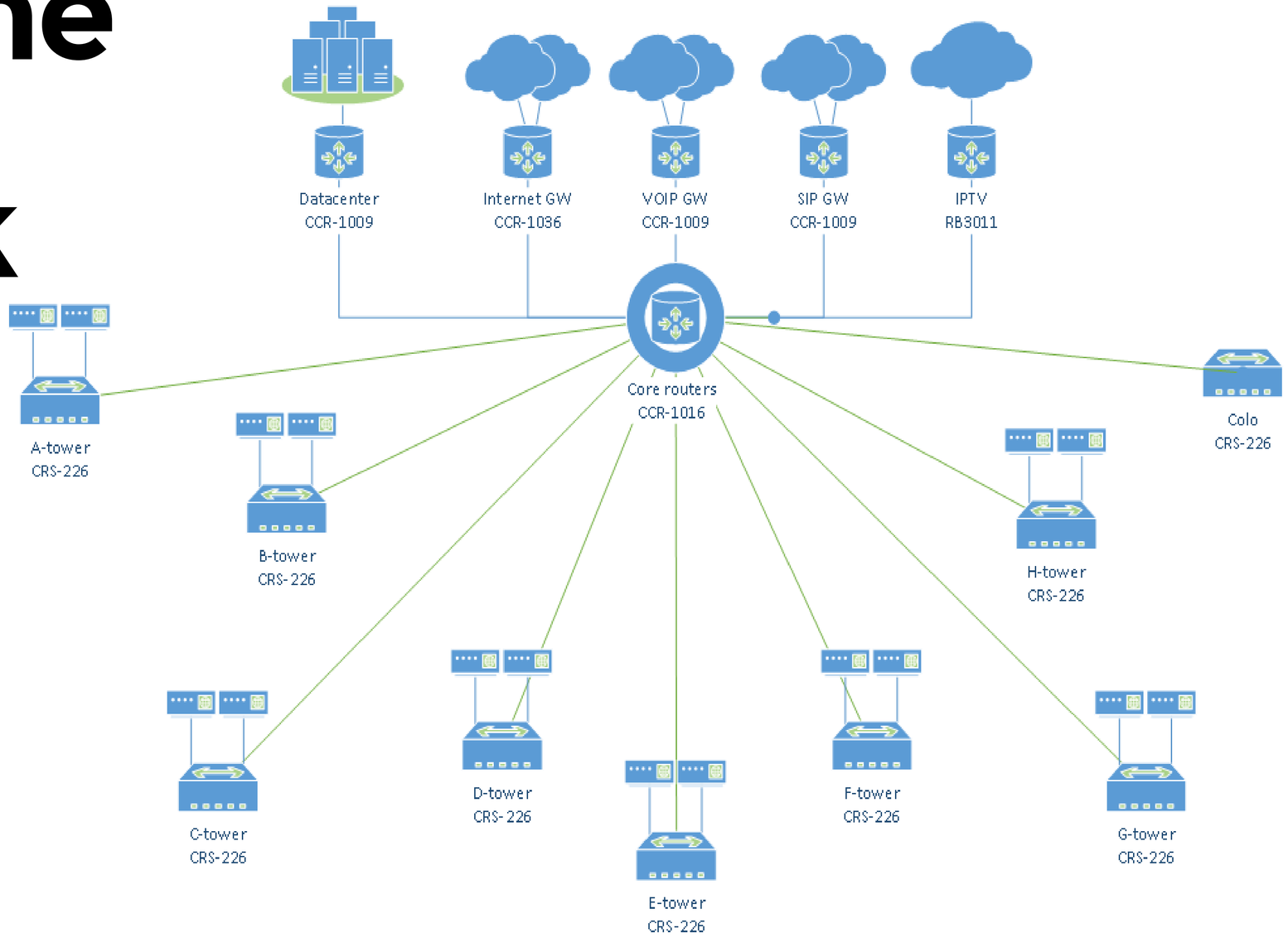
- Demarcation > provide a clear boundary between responsibilities client and provider
- Monitoring
  - bandwidth consumption on CPE
  - bandwidth consumption on individual client devices behind CPE
- Efficient allocation of IP addresses by using /32 addressing; flexibility in allocating non-sequential IP addresses
- Hassle-free and rapid deployment/provisioning of services, bandwidth, extra IP addresses
- Flexible traffic shaping to accommodate client-specific needs

Feature criteria

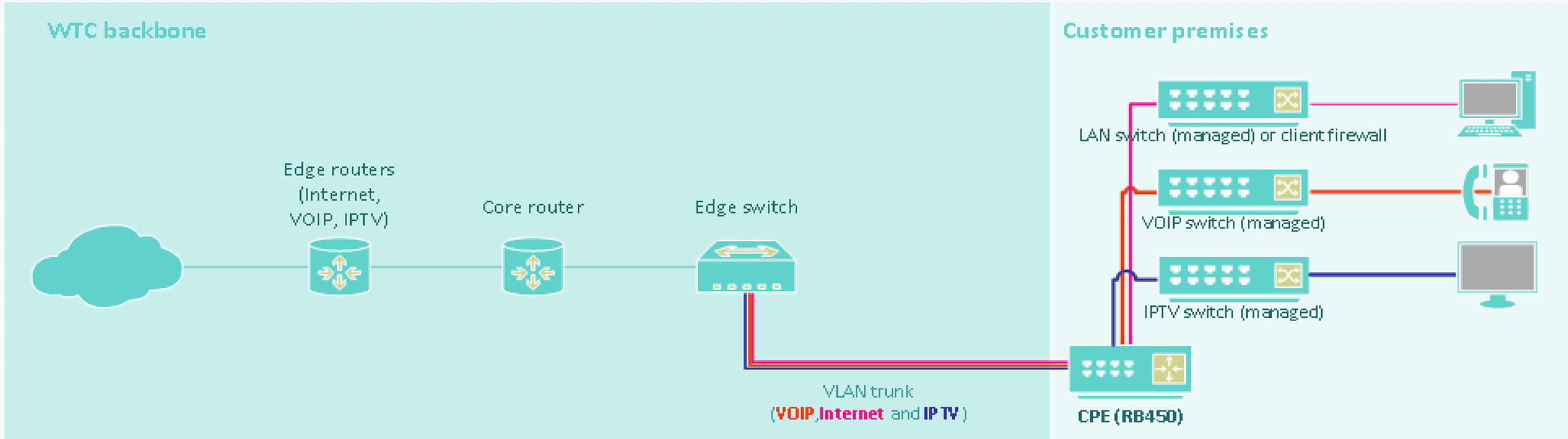
- Rich VLAN and routing feature set > RouterOS
- Turn-key monitoring and troubleshooting: Torch, graphing, statistics and overall insight to what’s going on in a device > WinBox
- Single vendor device range, from core to CPE > RB, CCR, CRS hardware
- bandwidth consumption on individual client devices behind CPE
- Manageability >RoMon & WinBox

- Thus: Mikrotik!

Backbone 2.0 core network



Backbone 2.0 client network



Migration Playbook

Two flavors

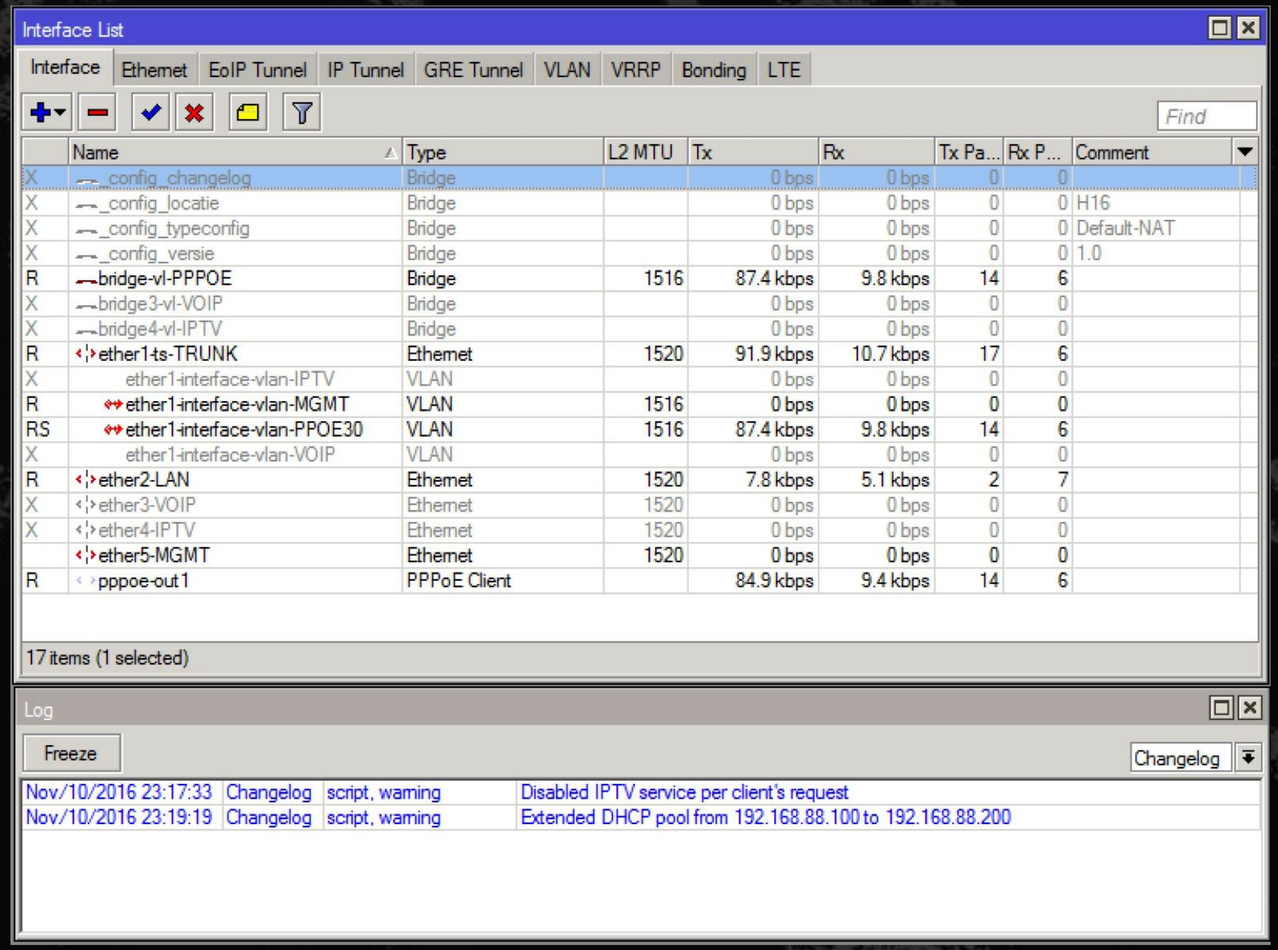
Managed & Bridge mode, always demarcation at MikroTik client device

- NAT/DHCP/ firewall/ VPN/ tailor-made traffic shaping etc.
- Bridge is BYOD

Backbone Deployment

- We decided to migrate managed clients first due to us having full control of the entire process
- Bridge clients easier in config however more difficult to migrate (external engineers, time difference)

Migration Playbook



Migration stats

- Migration from January 2015 until December 2016
- 250 clients migrated
- >300 RB450 CPE’s installed
- 20 CRS226
- 10 CCR devices

Challenges

- IP migration (technical & project management) 2 yrs 3x /24 subnet
- Coordinating external IT departments
- Site Surveying
- Parallel environment for 2 years
- Building new core while migrating away
- Bridge and engineers mode without PTP compatibility (overlapping /30 in cpe while /32 in pppoe)
- CPE config evolving during project

Current improvements

- Darkfiber connectivity to DC
- From Torch-based (ad-hoc) to PRTG monitoring (proactive/historical)
- Mass updating CPE script
- RoMoN management over separate VLAN (layer 2)
- Separate management VLAN (Layer 3)

Wishlist

Software

- switch limitations/STP/IGMP snooping

Hardware

- PoE(+) switch
- 48 ports switch
- CCR with 16+ SFP cages

References

Update script

http://wiki.mikrotik.com/wiki/Semi-Automating_CPE_ROS/Firmware/script_updates_and_setting_changes

Thank You!

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Questions?