

# NAT in the cloud

FRNOG 21  
September 20th, 2013

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# Disclaimer

Please don't laugh, this happens at every single research conference!

# The context



**ACM CoNEXT 2012**  
**December 10-13, 2012**  
**Nice, France**



The 8th *Conference on emerging Networking EXperiments and Technologies* was organized in Nice last year

- good papers
- lovely conference venue and nice weather

everything was fine, except the Net. despite a leased line

# The setup

The organizers leased a “pro” DSL setup for the week, including the wireless coverage for attendees

- 4Mbps symmetric was the best for the budget

In theory, this setup should work very well for 200 attendees

In practice, the network blew out at the end of the first day morning sessions

# Oops: Internet is broken, as usual in research conferences on networking

No DNS resolution

- but ISP's DNS is running perfectly
- ➔ AP's DNS resolver is overloaded

Clients do not always manage to connect to the network

- but wireless signal is good enough
- ➔ AP's DHCP is overloaded

Web pages still do not render correctly

- but loss rate "acceptable" with ping (~15%)
- ➔ AP's NAT is overloaded

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No DNS resolution

- but ISP's DNS is running perfectly
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Call the operator!

Web pages still do not render correctly

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No DNS resolution

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AP's is a DSL box for home networks,  
designed to support 15-20 clients

Web pages still do not render correctly

- but loss rate "acceptable" with ping (~15%)
- ➔ AP's NAT is overloaded

# Where are we?

AP's barely configurable (even DHCP cannot be configured) and not physically accessible

One old laptop (Dell Latitude E5400)

One old Cisco Access point

One old 100 Mbps switch

A few old (?) cables



# Where are we?

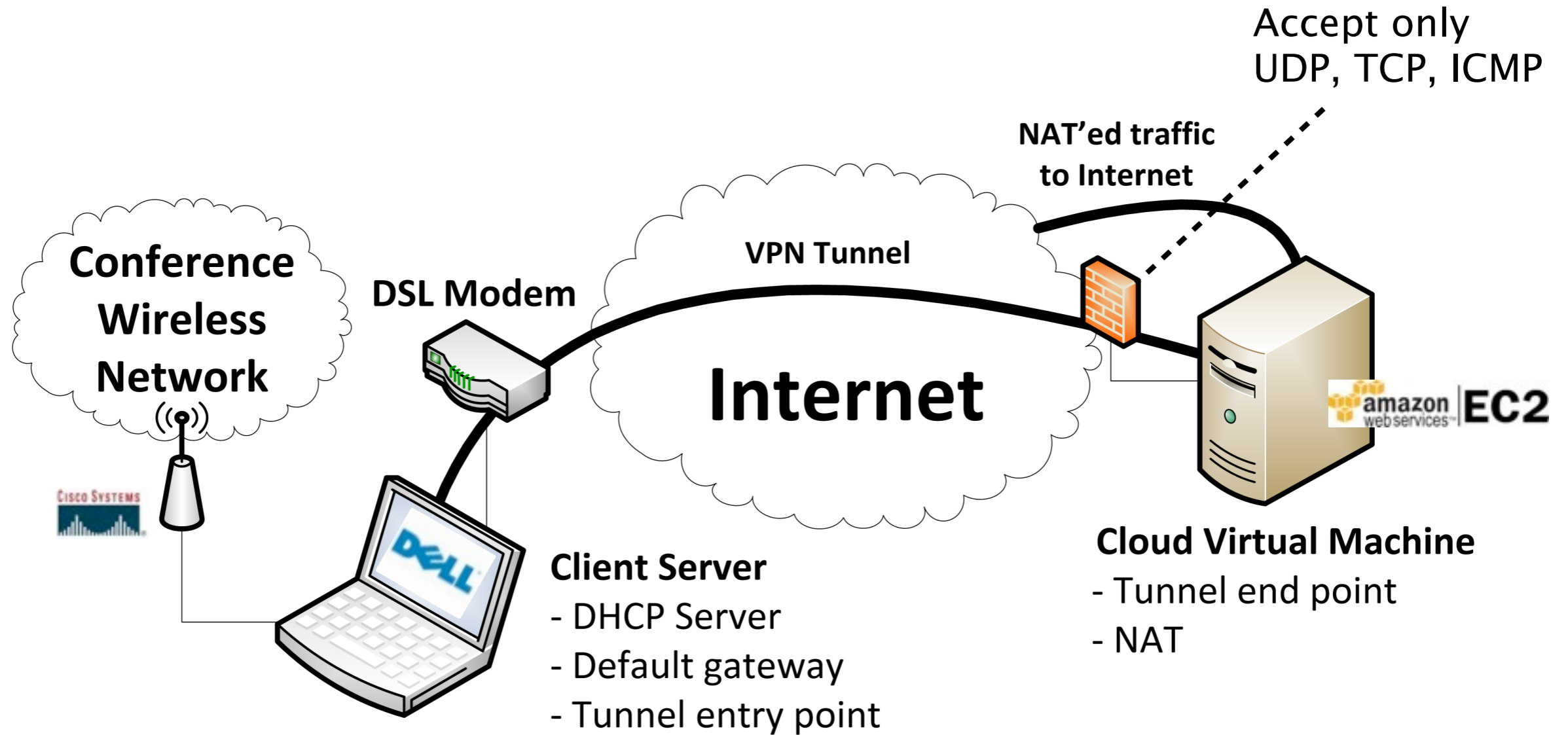
AP's barely configurable (even DHCP cannot be configured)  
and not physically accessible

Get rid of the AP as much as possible

One old 100 Mbps switch

A few old (?) cables

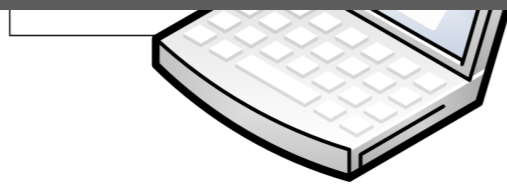
# Outsource the network to the cloud



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And voila!  
no problem anymore until the end of the week\*



- DHCP Server
- Default gateway
- Tunnel entry point

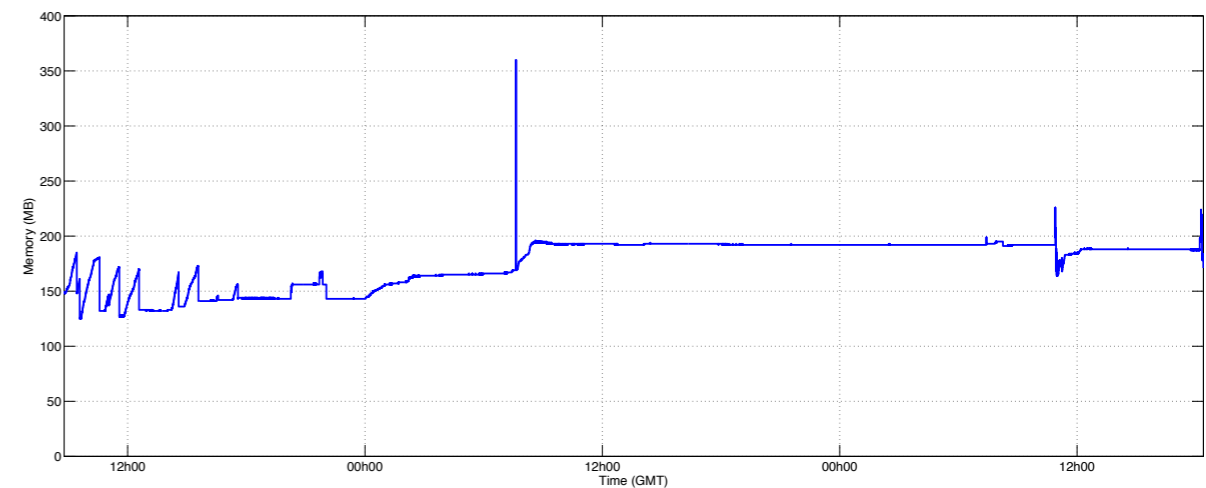
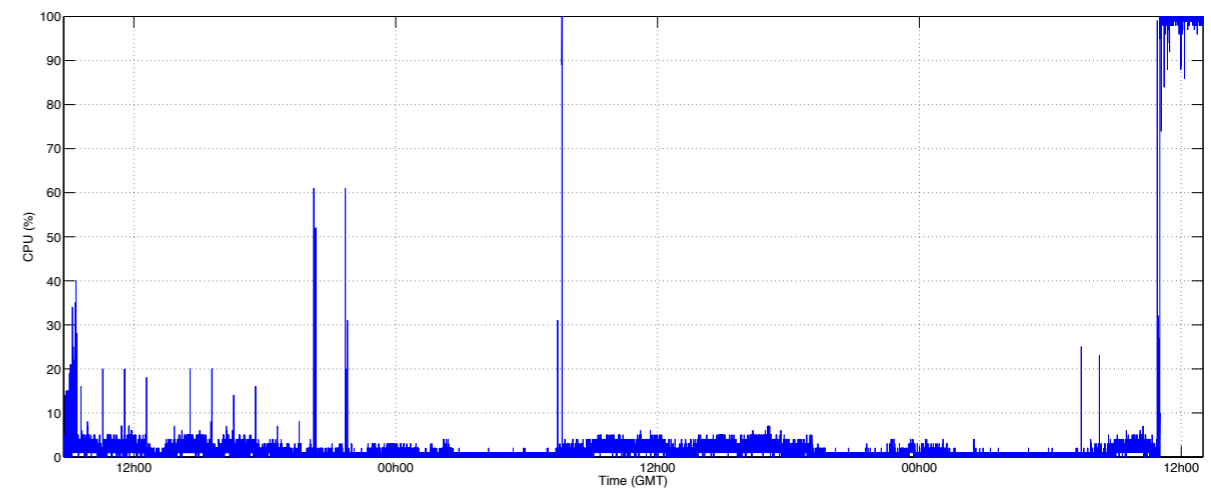
- NAT

# Conference front-end does not need to be powerful

CPU was not overloaded

- but we deactivated OpenVPN crypto support

Memory consumption was negligible



# Take away notes

Access points are usually under provisioned in conference venues (NAT will break eventually)

Move your traffic to the cloud via tunnels so to not overload access point state

\* In your cloud instance, beware of

- SMTP traffic
- not being considered as a bot (e.g., by Google scholar)

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