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# IPv6 Internet over DSL

IPv6 Task Force Meeting #8

Wednesday March 17<sup>th</sup>, 2010

# IPv6 Deployment within STC will follow a phased approach

## Network Capabilities (2009)

- **Network Assessment, including Audit of:**
  - Network Elements (HW/SW)
  - Management Systems
  - IPv4 Address (Private & Public)
  - Current / Future Services
- **Services driven transition plan developed**
- **Update of all relevant technical specs to include IPv6 requirements**
- **ISP IPv6 national route peering launched**

## Service by Service Development (2010)

- **Selection criteria:**
  - Minimal upgrades
  - IPv4 Public Address usage
  - Vendor feature roadmaps
  - Future services plans
- **2010 Planned items:**
  - IPv6 International Peering
  - Verify ISP wholesale model
  - IPv6 DSL HSI (High Speed Internet) trials

# IPv6 Internet over DSL: Three Infrastructures

- **STC Backbone Infrastructure:**

- Verify current STC DSL Internet wholesale model offered to ISPs can support IPv6 [[Next slide](#)]
- External dependencies: **MOI IPv6 (monitoring systems) readiness?**

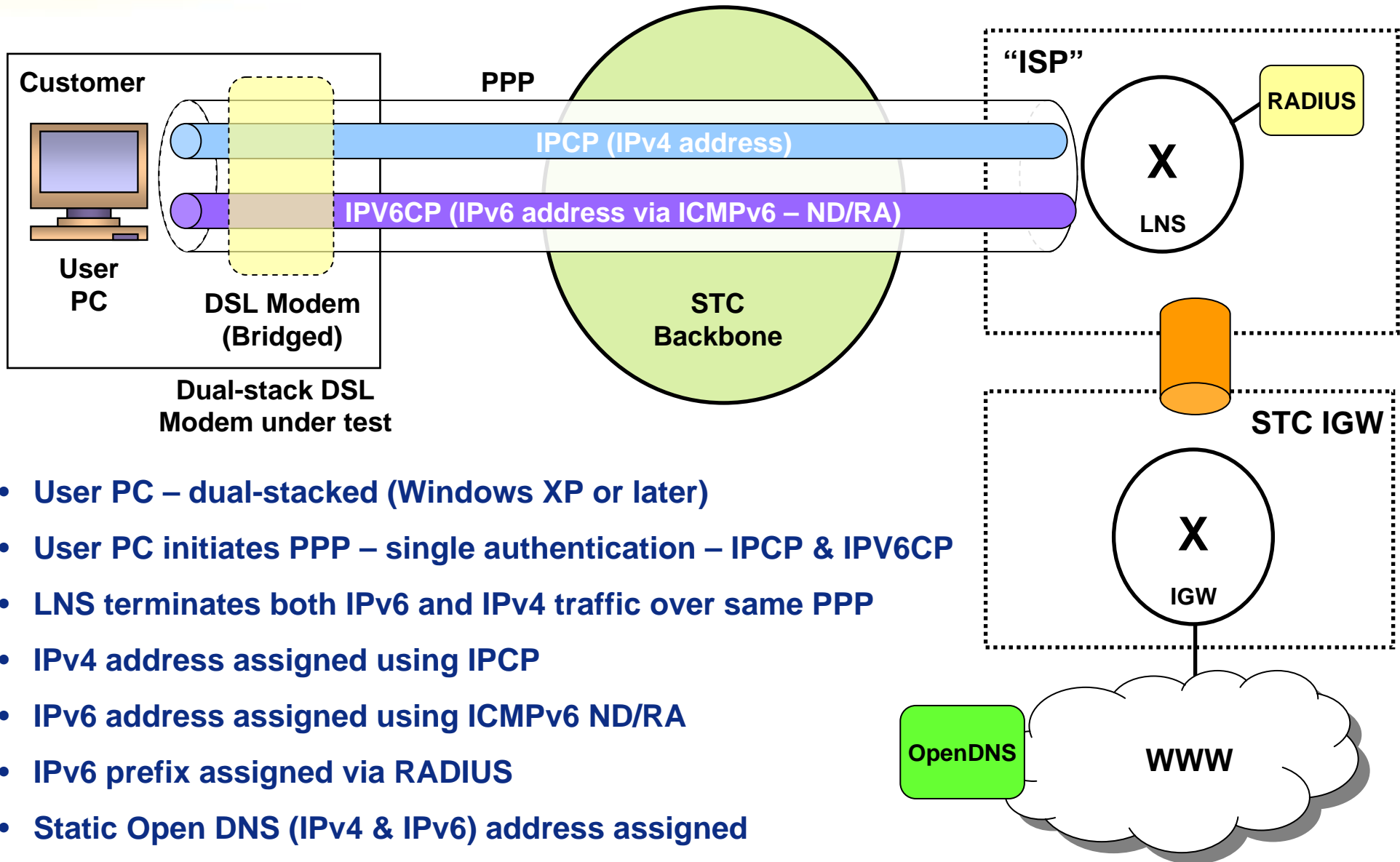
- **STC IGW Infrastructure:**

- IGW infrastructure IPv6 readiness based on Audit [[100%](#)]
- IPv6 International Peering [[Done](#)]
- Evaluating best approach to use for IPv6 traffic support [[Ongoing](#)]
- External dependencies: **CITC IPv6 Filter List (Smart Filter) readiness?**

- **Saudinet (ISP) Infrastructure:**

- Saudinet infrastructure IPv6 readiness based on Audit [[95%](#)]
- Evaluating of best approach to use for IPv6 support [[Ongoing](#)]

# Verify STC Backbone Transparent for IPv4 & IPv6



- User PC – dual-stacked (Windows XP or later)
- User PC initiates PPP – single authentication – IPCP & IPV6CP
- LNS terminates both IPv6 and IPv4 traffic over same PPP
- IPv4 address assigned using IPCP
- IPv6 address assigned using ICMPv6 ND/RA
- IPv6 prefix assigned via RADIUS
- Static Open DNS (IPv4 & IPv6) address assigned

# IPv6 on STC Backbone

Transport Service on STC Backbone for IPv6		Upgrades for IPv6
DSLAM-to-U-PE (LNS)	PPP session tunneled end-to-end	None
ISP International Routes	Tunneled to IGW <sup>[1]</sup>	None
Inter-ISP National Routes <sup>[2]</sup>	BGP peering	VPNv6
MOI Lawful Intercept <sup>[3]</sup>	Port mirroring	None expected

## Notes:

1. IGW (including IPv6 filters) must be IPv6 ready
2. VPNv6 for ISP IPv6 national peering capability launched in 2009
3. MOI infrastructure must be IPv6 ready

# ISP Concerns

1. IPv6 introduction to the same network? dual-stacking, tunneling, translation?
2. IPv6 on Filter Farms & DNS (dual-stack on current or use separate ones)?
3. IPv6 address assignments: NEs, Customers, Peers,..?
4. Which IPv6 routing protocols to use in core?
5. IPv6 security design?
6. Availability of dual-stack DSL modems?
7. How to check devices readiness in customer side to be IPv6 capable?
8. Tailored IPv6 employee training – Planning, Design, Operations?
9. How to integrate NMS/OSS to IPv6?
10. Troubleshooting methods/tools used to diagnose problems?

# Conclusions

- STC ISP wholesale Internet backbone transport service supports both IPv4 and IPv6
- All ISPs advised to start developing plans for support of IPv6 Internet service (audits, transition methods, customer requirements, ...)
- Potential dependencies for IPv6 Internet service launch:
  - MOI monitoring systems readiness for IPv6
  - CITC Filter lists for IPv6
  - IPv6 ready customer modems

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Thank You