
IPv6 ... ?

Bernard.Tuy@renater.fr

SFINX



Agenda

- IPv4 address space status
- ... IPv6 deployment
- (Short reminder on) "transition techniques"
- IPv6 peerings at SFINX
- Single IP traffic (unicast) VLAN
- Conclusion

SFINX

*SFINX Members Meeting
- Oct. 2nd, 2009*



2

IPv4 address space status

September 2009

SFINX



IANA /8s allocation pace

Year	Month	available /8s (IANA)	Yearly consumption
2006	September	59	
	December	55	16
2007	September	44	15
	December	42	14
2008	June	39 (-2) ?	11 (13) ?
	December	34	11
2009	June	30	11
	September	27	10

SFINX

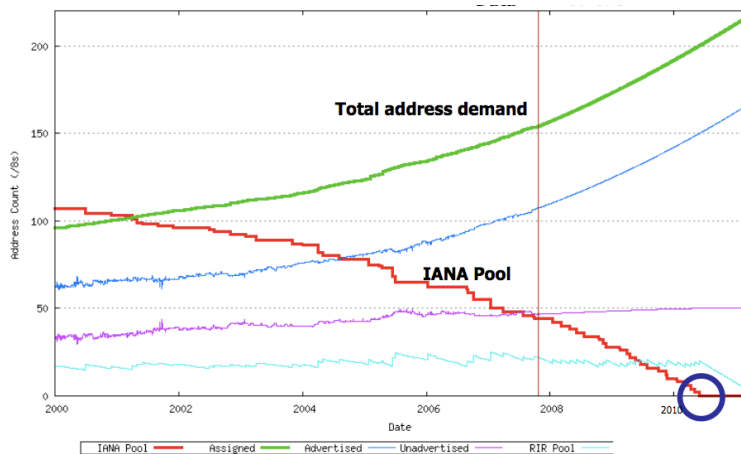
SFINX Members Meeting
- Oct. 2nd, 2009



4

Geoff Huston
APNIC
Sept. 2007

Exhaustion dates... /1



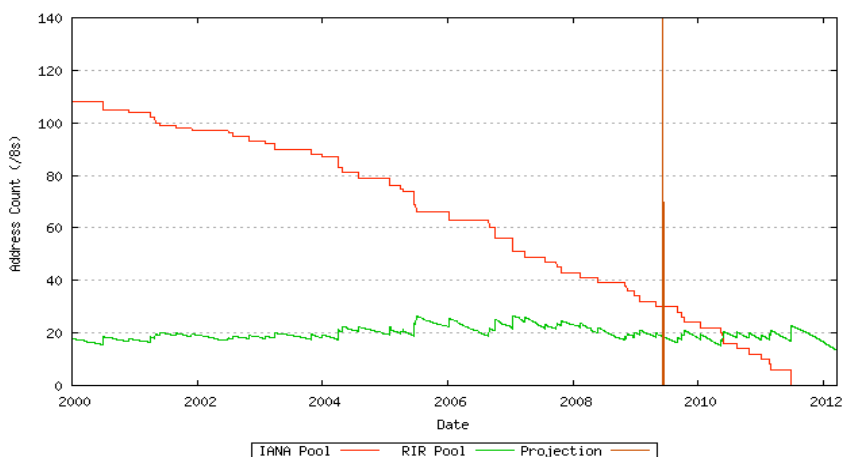
SFINX

SFINX Members Meeting
- Oct. 2nd, 2009



Geoff Huston
APNIC
May 2009

Exhaustion dates ... /2



SFINX

SFINX Members Meeting
- Oct. 2nd, 2009



Dead lines ...

- On September 28th 2009, exhaustion dates are foreseen :
 - IANA: Sept. 2011
 - Registries (RIRs) : July 2012
 - Source : <http://www.potaroo.net/tools/ipv4/>
- From the table in previous slide
 - 2,7 years => IANA's pool exhaustion on May 2012

SFINX

*SFINX Members Meeting
- Oct. 2nd, 2009*



(short) conclusion

- If you're already working to deploy and provide IPv6 connectivity and services
 - Then IMHO you're in the right direction
- If you're not
 - It's obviously wise to ask yourself if it's not time to consider this resource exhaustion seriously
 - Because 2 years ahead it's maybe not too long in advance to have every thing ready by the time you'll be required to be
- Documentation on IPv6 deployment at IXPs
 - draft-ietf-v6ops-v6inixp-02.txt
- And ...
 - Trainings for your operational staff !

SFINX

*SFINX Members Meeting
- Oct. 2nd, 2009*



IPv6 deployment(s)

SFINX



IPv6 Routes (dfp)

17/09/2008

Région (Registre)	Nb de routes IPv6
Afrique (AfrINIC)	66
Amérique du Nord (ARIN)	698
Amérique Latine et Caraïbes (LACNIC)	114
Asie (APNIC)	482
Europe (RIPE NCC)	1104
Total	2464
France	30 (64)
Source :	http://www.sixxs.net/tools/grh/dfp/

SFINX

SFINX Members Meeting
- Oct. 2nd, 2009



IPv6 Routes (dfp)

28/09/2009

Région (Registre)	Nb de routes IPv6
Afrique (Afrinic)	74
Amérique du Nord (ARIN)	1059
Amérique Latine et Caraïbes (LACNIC)	214
Asie (APNIC)	661
Europe (RIPE NCC)	1684
Total	3692
France	40
Source : http://www.sixxs.net/tools/grh/dfp/	

SFINX

SFINX Members Meeting
- Oct. 2nd, 2009



IPv6 Routes (France)

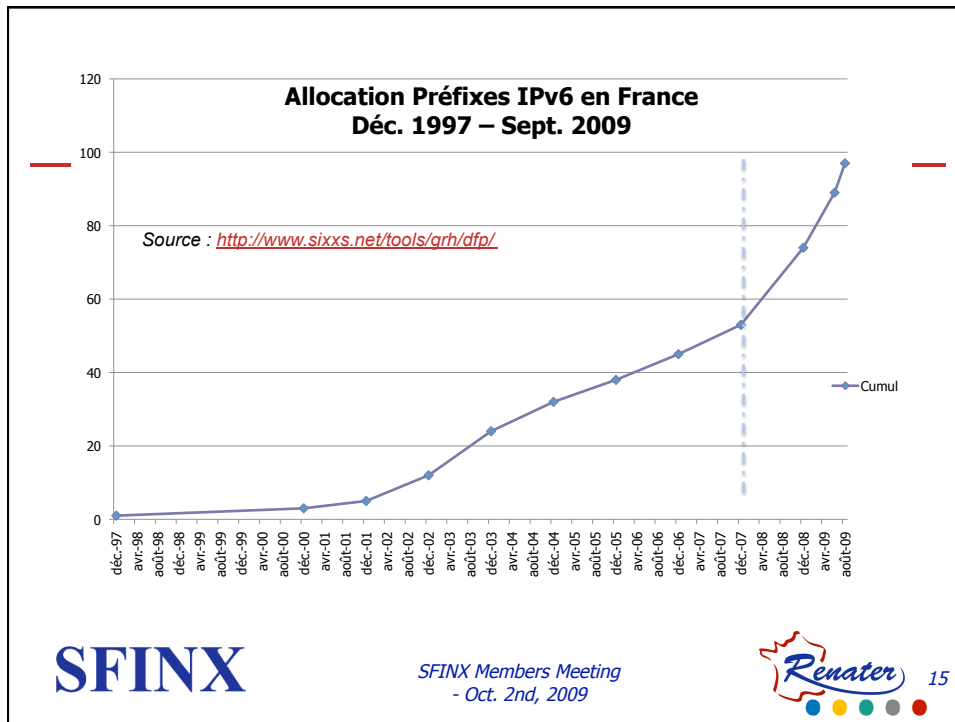
28/09/2009

Données	Valeur
Préfixes alloués	90 (96)
Préfixes routés	40 (46 %)
/35	0
Rang EU	4°/48
Rang Mondial	6°/149
Source : http://www.sixxs.net/tools/grh/dfp/	

SFINX

SFINX Members Meeting
- Oct. 2nd, 2009





(short) conclusion

- Did you think your competitors aren't in the IPv6 race yet ?
- (more) Calculations
 - IPv6 prefix allocations increased 50% over the last 12 months
 - And increased 50% in EU region too
 - And increased 43% in France
- Then you're not in an IPv6 desert ...
- And preparing to deploy IPv6 seems not a that stupid idea than someones still use to say

SFINX

SFINX Members Meeting
- Oct. 2nd, 2009



“Transition techniques”

... short (again) reminder

SFINX



Terminology

- **Transition** is a “bad” word
 - Since we’re not leaving IPv4 to move to IPv6
 - BUT: deploying IPv6 along side IPv4
- And **Coexistence** of the 2 IP versions will last a couple of ... decades ?

SFINX

SFINX Members Meeting
- Oct. 2nd, 2009



Deploying IPv6 ...

Using coexistence/transition mechanisms

⇒ Dual Stack ... preferred

⇒ IPv6 traffic is native

- Encapsulation
 - 6(V)PE ... for MPLS core networks
 - IPv6/IPv4 ... static + dynamic tunnels
 - 6to4 ... to be avoided (IMHO)
 - And replaced with 6RD ... but CPEs s/w has to be changed

SFINX

*SFINX Members Meeting
- Oct. 2nd, 2009*



Conclusion

- Main goal to achieve :
 - Get prepared to offer IPv6 connectivity and services to your customer
 - Figure out what dead line suits your constraints and commercial objectives
 - Decide for a scenario taking into account your company constraints and specificities
- Do remind:
 - You're not the first one running for this exercise
 - A lot of documentation is available on line
 - And plan the earliest the training of your staff

SFINX

*SFINX Members Meeting
- Oct. 2nd, 2009*



Bibliography

<http://www.potaroo.net/tools/ipv4/>

<http://www.nro.org/statistics>

<http://www.sixxs.net/tools/grh/dfp/>

<http://www.point6.net>

Retrieving this presentation on-line:

http://www.renater.fr/IMG/pdf/Slides_IPv6-SFINX_meetg-Oct2009.pdf

SFINX

SFINX Members Meeting
- Oct. 2nd, 2009



Any questions ...

... and may be some answers

SFINX



IPv6 VLAN removal on SFINX PoPs

Jerome.Durand@renater.fr

SFINX



Why all this ?

- Initially IPv6 in a dedicated VLAN
 - Isolate flows of the new Internet protocol
 - Monitoring easier (absence of MIBs and flow monitoring solutions at this time)
- Problems raised
 - Difficulty for customers already using same VLAN numbers on their access switches
 - Not homogeneous with other GIX

SFINX

*SFINX Members Meeting
- Oct. 2nd, 2009*

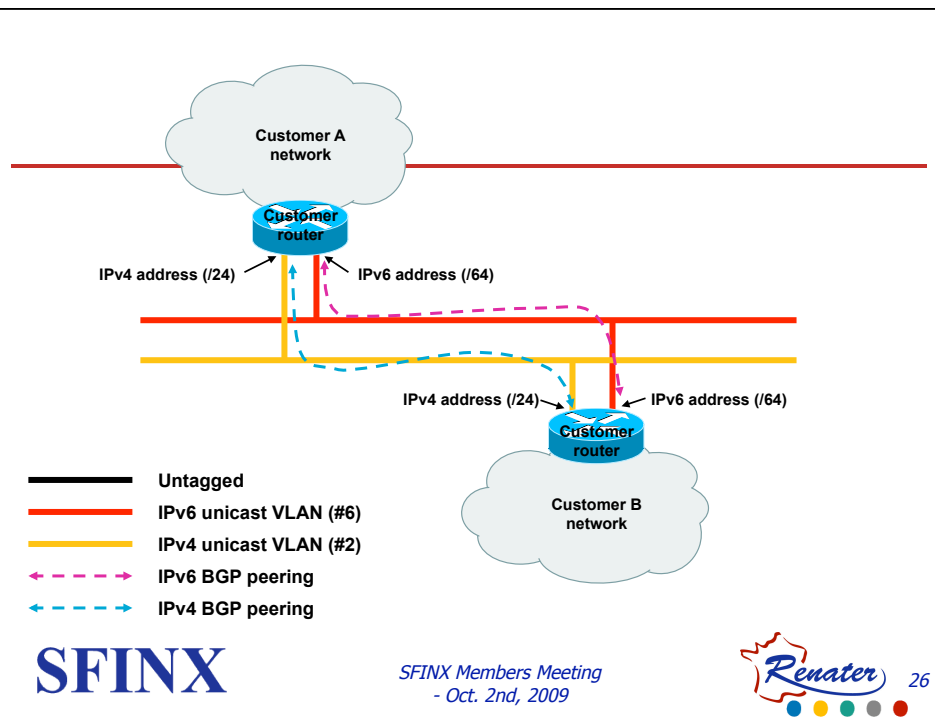


Migration not so easy

- Smooth migration process chosen
- New IPv6 prefix
 - 2001:7f8:4e::/48
 - In RIPE prefix dedicated for GIX
- Members asked to configure new peerings on the default IPv4/IPv6 unicast VLAN and then remove former IPv6 addresses

SFINX

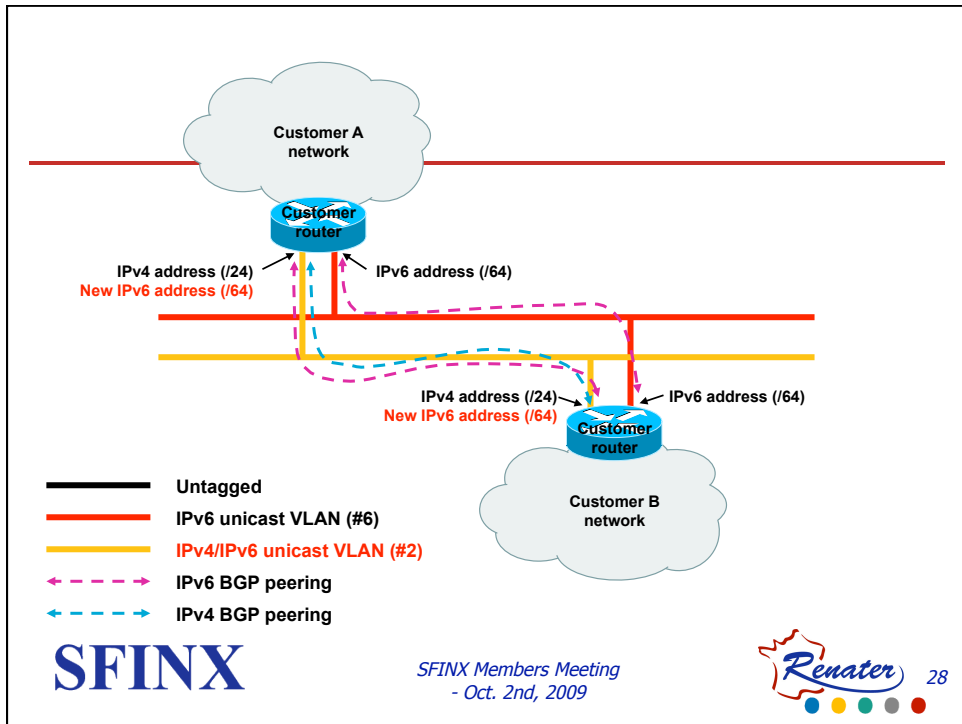
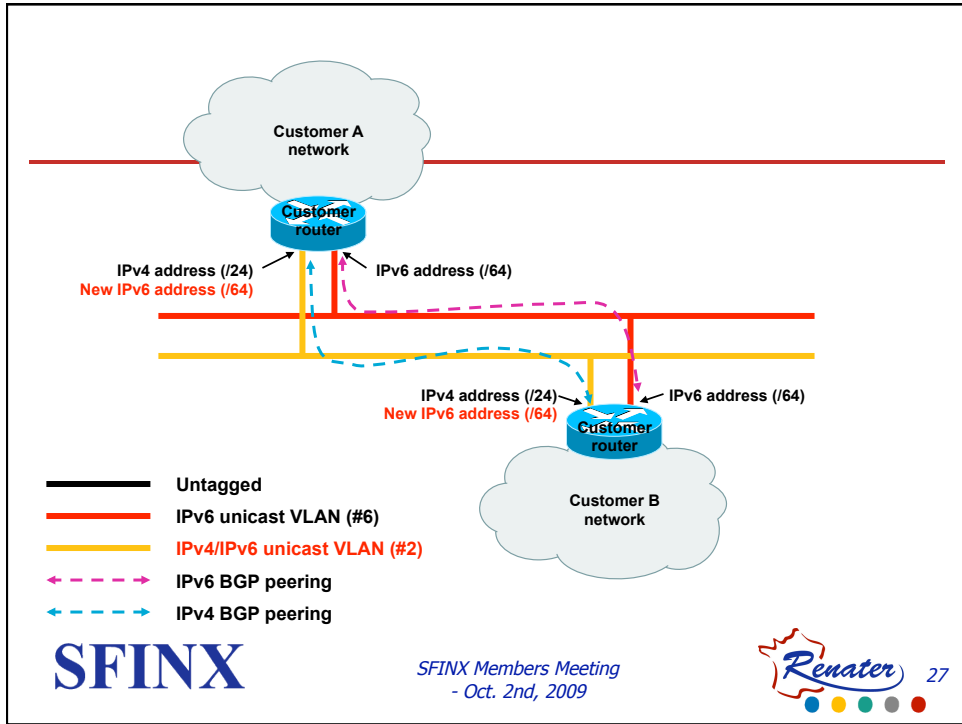
SFINX Members Meeting
- Oct. 2nd, 2009

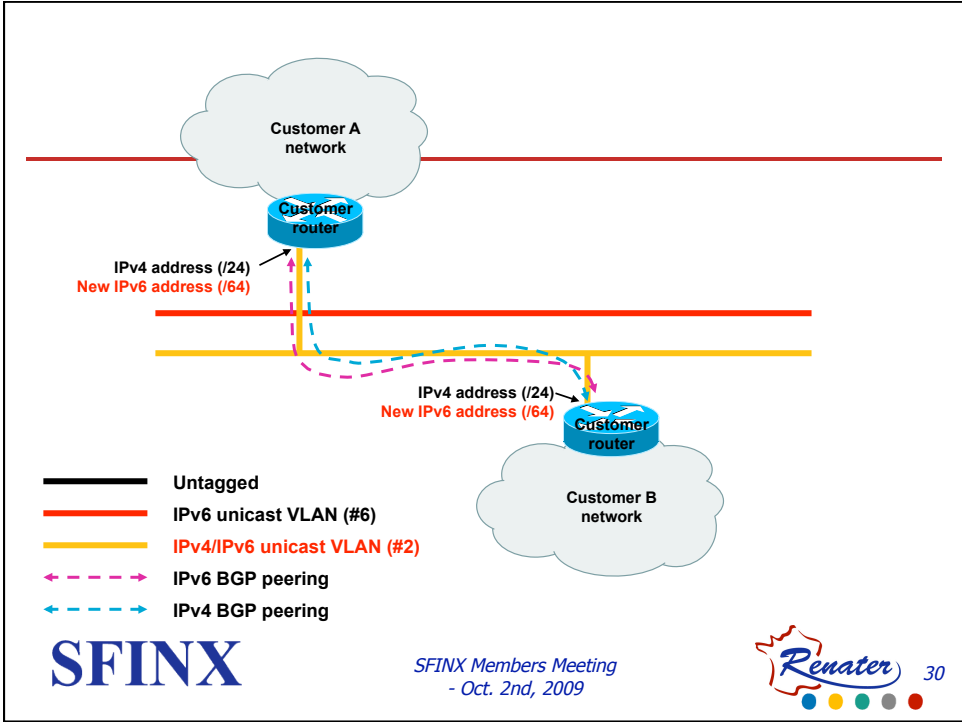
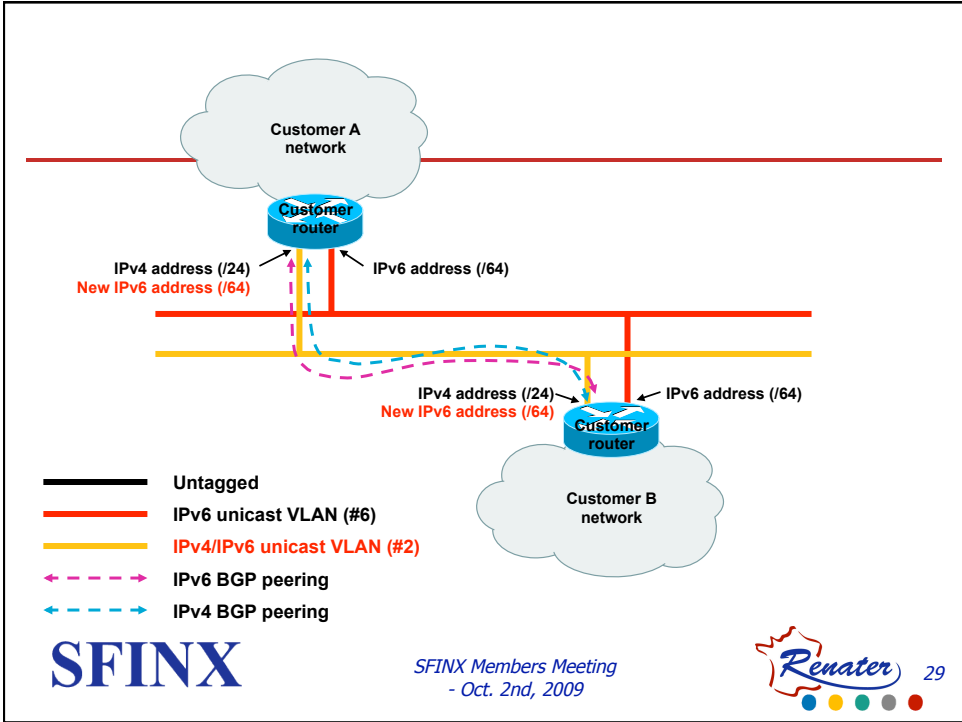


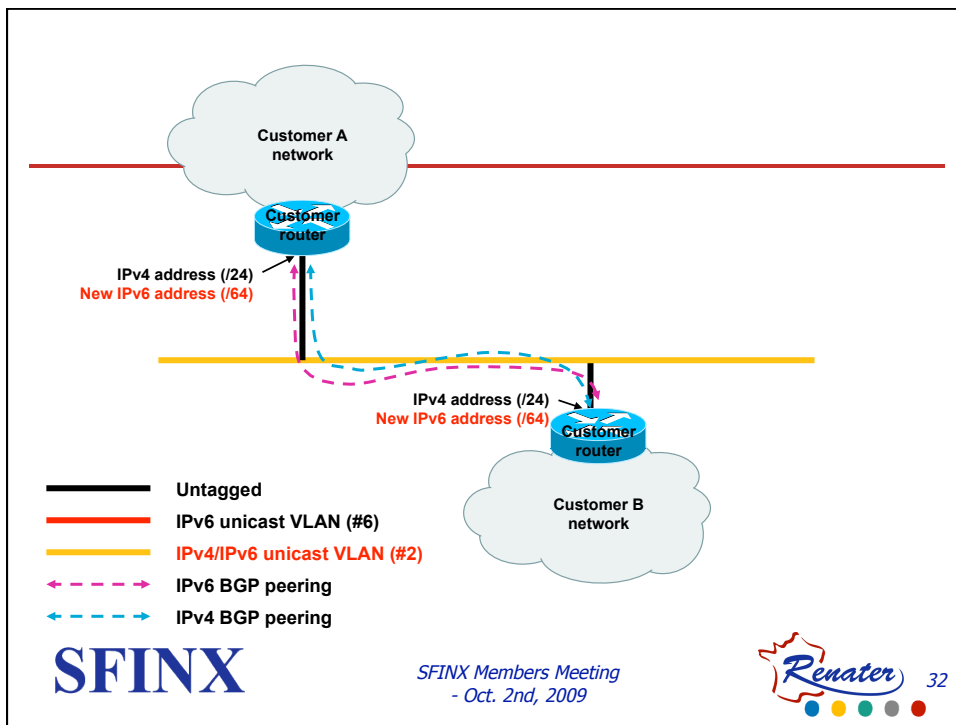
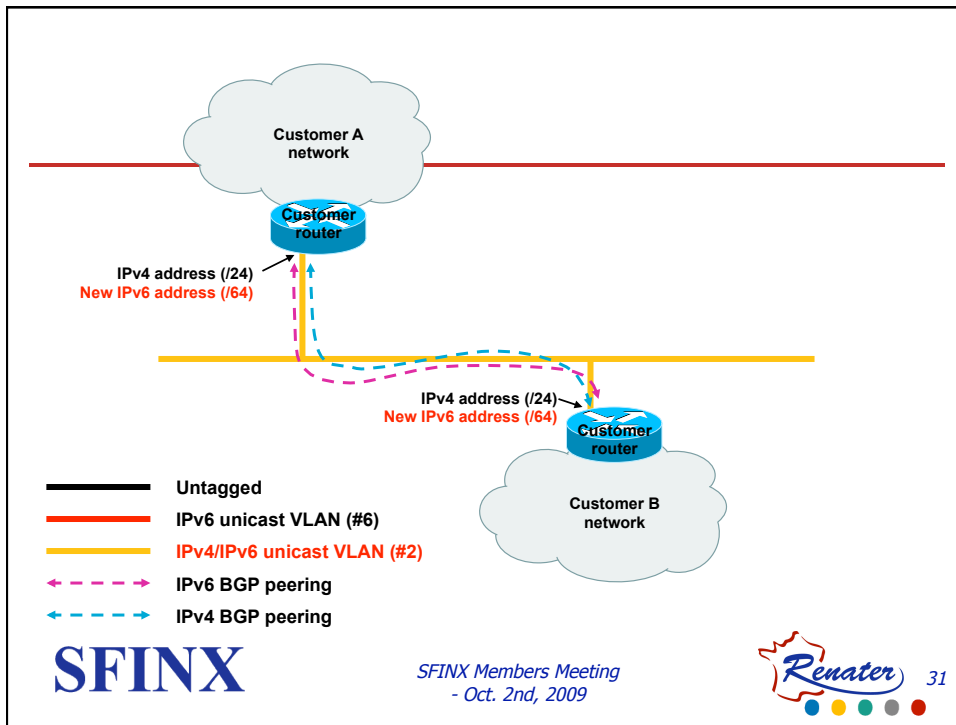
SFINX

SFINX Members Meeting
- Oct. 2nd, 2009









Schedule

- Started on July 30th
 - 30 days announced for migration
- Most of members migrated quickly
 - But few needed extra time
- Removal of IPv6 VLAN on September 28th
 - SFINX ticket 1715230



SFINX Members Meeting
- Oct. 2nd, 2009



Any questions ...

... and may be some answers

