



Liberté • Égalité • Fraternité

RÉPUBLIQUE FRANÇAISE

IPv6 transition in French Defense

No needs to go
but

Defense Networks

Current Situation – IPv4

- Most defenses in the world decided to migrate massively towards IPv4 protocol during nineties
- Through shortage of IPv4 addresses in Internet, most nations used a private addressing plan based on RFC 1918 or reused privately the whole addressing plan of Internet
- As addressing plan was considered as a national issues, no consistency actions was undertaken among nations

French situation

- France set up in 1995 a consistent addressing plan for IPv4
- This addressing plan spread over the whole Internet addressing plan
- No conflicts of addresses among the French armed forces
 - to keep our capacities of lead nation
 - COTS forever (IPv6 needed in civil world, stick to civil developmt)



French Defense Networks

Interest for IPv6 – Major benefit



- The massive address space
 - Each nation can ask for a global addressing space
 - To have enough address for each equipment on the theater
 - All the elements of the theater (e.g. vehicles, warriors, sensors) may have their own network prefix
- Network mobility (NEMO)
 - Embedded network in vehicles
- Simplification of configurations and management
 - Renumbering
 - Autoconfiguration
 - Services Discovery (*anycast addressing ; for example : main and alternate CP*)

French Defense Networks

Interest for IPv6 – Other benefit expected

- - flow label
- - multicast : variable scope
- - better Voice on IP
- - better Video on IP
- - Always-on
- - sensors networking
- - no more NAT (specially useful in case of coalition)



French Defense Networks

Interest for IPv6 – Major Obstacle



- Defense programs are characterized by
 - Long Procurement cycle (several years between decision phase and in service phase)
 - Long products life cycle (about 20 years)

IPv6 in French Defense Networks

French initiatives



- 10 years of experience with IPv6 protocols
- First experimentations in 1995
- May 2003 - MoD directive

- 2005 – Study on IPv6 transition of Defense systems
 - State of the art on the ability to migrate towards IPv6 for existing systems and networks
 - IPv6 Addressing Plan definition
 - Migration scenarios definition

IPv6 in French Defense Networks

French initiatives



- Transition Scenarios
 - First change : the core Network, named SOCRATE
 - second place to change : the crypto devices
 - third point : the information systems
 - ASAP : the applications (today in France, no military application is ready to IPv6)

IPv6 in French Defense Networks

Exemple of Transition



SOCRATE Network : a joint infrastructure network



- More than 600 sites connected
- all over France
- beginning in 1993 on the base of the Army and Air Force network
- based on ATM protocol then IP introduced
- A program finishing in 2008 for phase 2.
- Will be replaced from 2012 by an end to end network (seamless)

IPv6 in French Defense Networks

Exemple of Transition



SOCRATE Network : a joint infrastructure network

- phase 1 : 1995 - 2003 : IPv4
- phase 2 : 2003 - 2008 : IPv4/v6
- V6 will be available this autumn for the main defence bases and during next summer for the rest of the bases.

IPv6 in French Defense Networks

Exemple of Transition



- IP Crypto devices
 - The next version of French IP governmental devices is under development
 - This version will include both IPv4 and IPv6 stacks
 - It will be available for armed forces in 2008
 - It will include the capacity to transfer IPv4 and IPv6 flows in IPv6 tunnels

IPv6 in French Defense Networks

Schedule



- 2007 : IPv6 capabilities in the core network
- 2008 : First cryptographic device with IPv6 capabilities
- 2010 : The whole network is IPv4 and IPv6 except few systems which will be replaced soon
- 2011 : The core network is IPv6 only
- 2013 : IPv4 is not required any more in new equipments

IPv6 in French Defense Network

Conclusion



- The main interests for IPv6 are the massive address space and mobility
- IPv6 has been tested during 5 years in INSC project and can be considered as mature enough to start the transition
- France is already engaged in transition

Questions

(20 dollars each one,
no refund)

Never forget

the reason why

you are working

