Department of the Interior
October 2011

IPv6 and Acquisitions

Presentation Overview

- IPv6 requirements in the Federal Acquisition Regulations (FAR)
- Our Strategy
- Communicating our Strategy
  - Definitions used in the Department of the Interior (DOI)
  - Process Map
  - Roles and Responsibilities
  - Exception Process
- Some Observations

FAR Part 7

FAR 7.1 – Acquisition Plans

FAR 7.105 Contents of written acquisition plans

FAR 7.105(b) – Plan of action

FAR 7.105(b)(5) – Acquisition Considerations

(iii) For information technology acquisitions using Internet Protocol, discuss whether the requirements documents include the Internet Protocol compliance requirements specified in 11.002(g) or a waiver of these requirements has been granted by the agency's Chief Information Officer.

Waivers are case by case. More later.

FAR Part 11

FAR 11 – Describing Agency Needs

    FAR 11.002 - Policy

        FAR 11.002(g)

(g) Unless the agency Chief Information Officer waives the requirement, when acquiring information technology using Internet Protocol, the requirements documents must include reference to the appropriate technical capabilities defined in the **USGv6 Profile** (NIST Special Publication 500-267) and the corresponding declarations of conformance defined in the USGv6 Test Program. The applicability of IPv6 to agency networks, infrastructure, and applications specific to individual acquisitions will be in accordance with the agency's Enterprise Architecture (see OMB Memorandum M-05-22 dated August 2, 2005).

FAR Part 12

FAR 12.2 – Special Requirements for the Acquisition of Commercial Items

12.202 Market research and description of agency need.

(iii) For information technology acquisitions using Internet Protocol, discuss whether the requirements documents include the Internet Protocol compliance requirements specified in 11.002(g) or a waiver of these requirements has been granted by the agency's Chief Information Officer.
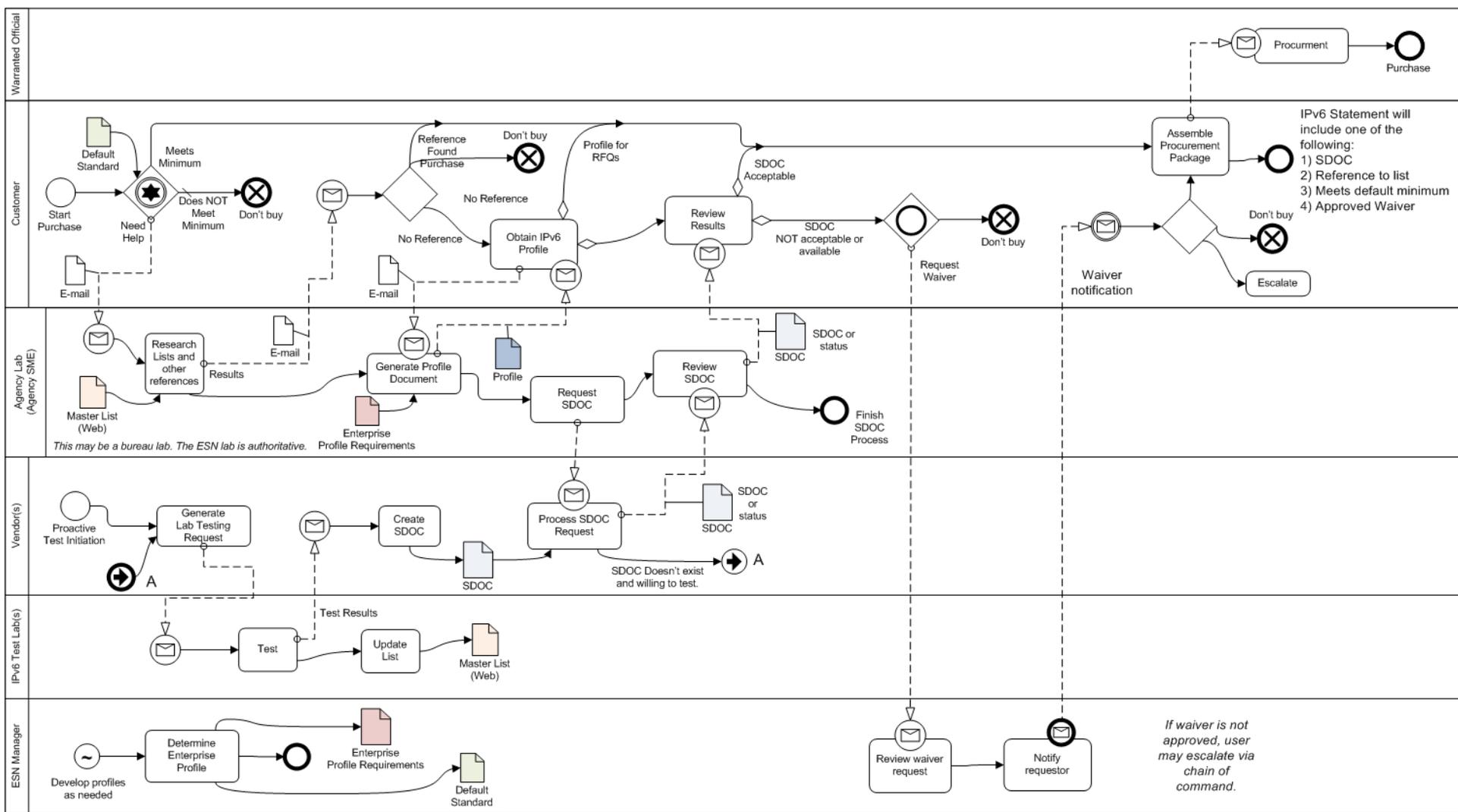
	11		Suppliers Declaration of Conformity for USGv6 Products: Declared Capabilities and Test Results Summary								USGv6-v1 SDOC-v1.5 Page 2
	Product Id:				**Stack Id:**						
				Context /	**Supported Capabilities**				**USGv6 Testing Program Results**		
	Spec /			Configuration				Test Suite	Test Lab / Result ID, Note #, or	Test Suite	Test Lab / Result ID, Note #, or
	Reference	Section	**USGv6-v1 Profile Requirements**	Option	**Host**	**Router**	**NPD**	Conformance/NPD	Component Ref	Interoperability	Component Ref
5	SP500-267	6.1	**IPv6 Basic Requirements**								
6			support of IPv6 base (IPv6;ICMPv6;PMTU;ND)	IPv6-Base	🟩	🟩		**Basic_v1.*_C**		**Basic_V1.*_I**	
7			support of stateless address auto-configuration	SLAAC		⬜		**SLAAC-V1.*_C**		**SLAAC-V1.0_I**	
8			support of SLAAC privacy extensions.	PrivAddr				*Self Test*		*Self Test*	
9			support of stateful (DHCP) address auto-	DHCP-Client				*Self Test*		**DHCP_Client_v1.*_**	
10			support of automated router prefix delegation	DHCP-Prefix				*Self Test*		*Self Test*	
11			support of neighbor discovery security extensions	SEND				*Self Test*		*Self Test*	
12	SP500-267	6.6	**Addressing Requirements**								
13			support of addressing architecture reqts	Addr-Arch	🟩	🟩		**Addr_Arch_v1.*_C**		**Addr_Arch_v1.*_I**	
14			support of cryptographically generated addresses	CGA				*Self Test*		*Self Test*	
15	SP500-267	6.7	**IP Security Requirements**								
16			support of the IP security architecture	IPsecv3	🟩	🟩		**IPsecv3_v1.*_C**		**IPsecv3_v1.*_I**	
17			support for automated key management	IKEv2	🟩	🟩		**IKEv2_v1.*_C**		**IKEv2v1.0_I**	
18			support for encapsulating security payloads in IP	ESP	🟩	🟩		**ESPv3_v1.*_C**		**ESP_v1.*_I**	
19	SP500-267	6.11	**Application Requirements**								
20			support of DNS client/resolver functions	DNS-Client				*Self Test*		*Self Test*	
21			support of Socket application program interfaces	SOCK		⬜		*Self Test*		*Self Test*	
22			support of IPv6 uniform resource identifiers	URI				*Self Test*		*Self Test*	
23			support of a DNS server application	DNS-Server				*Self Test*		*Self Test*	
24			support of a DHCP server application	DHCP-Server				*Self Test*		**DHCP_Serv_v1.*_I**	
25	SP500-267	6.2	**Routing Protocol Requirements**								
26			support of the intra-domain (interior) routing	IGW	⬜			*Self Test*		**OSPFv3_v1.*_I**	
27			support for inter-domain (exterior) routing protocols	EGW	⬜			*Self Test*		**BGP_v1.*_I**	
28	SP500-267	6.4	**Transition Mechanism Requirements**								
29			support of interoperation with IPv4-only systems	IPv4	⬜			*Self Test*		*Self Test*	
30			support of tunneling IPv6 over IPv4 MPLS services	6PE	⬜			*Self Test*		*Self Test*	
31	SP500-267	6.8	**Network Management Requirements**							Self Test	
32			support of network management services	SNMP		🟩		*Self Test*		Self Test	
33	SP500-267	6.9	**Multicast Requirements**								
34			support of basic multicast	Mcast	🟩	🟩		*Self Test*			
35			full support of multicast communications	SSM				*Self Test*		*Self Test*	
36	SP500-267	6.10	**Mobility Requirements**								
37			support of mobile IP capability.	MIP				*Self Test*		*Self Test*	
38			support of mobile network capabilities	NEMO	⬜			*Self Test*		*Self Test*	
39	SP500-267	6.3	**Quality of Service Requirements**								
40			support of Differentiated Services capabilities	DS		🟩		*Self Test*		*Self Test*	
41	SP500-267	6.12	**Network Protection Device Requirements**								
42			support of common NPD reqts	NPD			🟩	**N1¦N2¦N3¦N4_v1.3**			
43			support of basic firewall capabilities	FW	⬜	⬜		**N1_FW_v1.3**			
44			support of application firewall capabilities	APFW	⬜	⬜		*Self Test*			
45			support of intrusion detection capabilities	IDS	⬜	⬜		**N3_IDS_v1.3**			
46			support of intrusion protection capabilities	IPS	⬜	⬜		**N4_IPS_v1.3**			
47	SP500-267	6.5	**Link Specific Technologies**								
48			support of robust packet compression services	ROHC				Self Test		Self Test	
49			support of link technology [O:1]	Link=	🟩	🟩		Self Test		Self Test	
50					🟩	🟩					
51			(repeat as needed) support of link technology	Link=							
52	**12**		**< Check HERE if this stack's DOC includes additional information about tested capabilities and options on an attached page 3 of notes.**								
53											

Our Strategy to Bake-In IPv6

- Develop an 'easy' process and a 'complex' process. Hosts & Routers/Network Protection Devices
- Treat the IPv6 capability requirements similar to gathering, analyzing and approving technical specifications within the various purchasing processes.
- Acquisition Community can do the following:
  - Raise awareness in the acquisition community about the FAR and USGv6 requirements.
  - Ensure IPv6 is considered in all IT equipment acquisition packages and services.
- IT Community can do the following:
  - Alert IT staff of the FAR and USGv6 requirements.
  - Provide guidance for using the USGv6 profile process with DOI and the bureau.
  - Create USGv6 Subject Matter Expert (SME) to assist with network related purchases.
  - Provide justification within SOWs and other acquisition packages (e.g. IPv6 Ready Logo, SDOC, IPv6 statement)
- ESN is gathering SDOCs for our TIC Gateways and infrastructure.

Definitions used by our agency

- Customer – originates the purchase and has the needs requirements.
- Contracting Official – conducts the acquisition
- ESN Lab – staff in the Enterprise Services Network lab assigned to IPv6 acquisition support
- Vendor – entity selling the equipment
- Test Lab – certified IPv6 Test Lab or Department of Defense (DoD) lab
- ESN Manager – Enterprise Services Network Manager

IPv6 Acquisition Process

Version 1.0
25 July 2011

Swimlanes (left labels):
- Warranted Official
- Customer
- Agency Lab (Agency SME)
- Vendor(s)
- IPv6 Test Lab(s)
- ESN Manager

Warranted Official lane:
- Procurment → Purchase

Customer lane:
- Start Purchase
- Default Standard
- Need Help
- Meets Minimum
- Does NOT Meet Minimum → Don't buy
- E-mail
- Reference Found Purchase → Don't buy
- No Reference
- No Reference
- Profile for RFQs
- Obtain IPv6 Profile
- E-mail
- Review Results
- SDOC Acceptable
- SDOC NOT acceptable or available → Don't buy
- Request Waiver
- Waiver notification
- Don't buy
- Escalate
- Assemble Procurement Package

IPv6 Statement will include one of the following:
1) SDOC
2) Reference to list
3) Meets default minimum
4) Approved Waiver

Agency Lab (Agency SME) lane:
- Research Lists and other references
- E-mail
- Results
- Master List (Web)
- *This may be a bureau lab. The ESN lab is authoritative.*
- Generate Profile Document
- Profile
- Enterprise Profile Requirements
- Request SDOC
- Review SDOC
- SDOC
- SDOC or status
- Finish SDOC Process

Vendor(s) lane:
- Proactive Test Initiation
- Generate Lab Testing Request
- A
- Create SDOC
- SDOC
- Process SDOC Request
- SDOC or status
- SDOC
- SDOC Doesn't exist and willing to test. → A

IPv6 Test Lab(s) lane:
- Test
- Test Results
- Update List
- Master List (Web)

ESN Manager lane:
- Develop profiles as needed
- Determine Enterprise Profile
- Enterprise Profile Requirements
- Default Standard
- Review waiver request
- Notify requestor
- *If waiver is not approved, user may escalate via chain of command.*

Customer Responsibilties

- Originates the purchase and needs requirement.
- Ensures the equipment meets DOI IPv6 requirements.
- Provides backup documentation for procurement packages.
- For Host purchases:
  - Host purchases include the following:
    - Desktops, laptops and other computers
    - Handheld network devices such as bar code readers, etc.
    - Printers, scanners and other typical networkable accessories
  - DOI accepts one of the following proofs :
    - IPv6 Ready Logo
    - Vendor statement
    - SDOC (Suppliers Document of Conformance)
- For Router/Network Protection Device purchases:
  - Router/NPD purchases include the following:
    - Routers, Switches, WAN accelerators, proxies
    - Network Protection Devices (NPD) such as firewalls, intrusion detection systems, sniffers, etc.
  - Work with the ESN lab to obtain the USGv6 profile and SDOC
- Customer may use micro-purchase procedures to procure IPv6 compatible products and must ensure the product meets DOI IPv6 specifications.

Contracting Responsibilities

- Ensure package contains the IPv6 certification.
- For host purchases, such as PCs and other network peripherals, the devices must meet DOI's minimal IPv6 profile requirements. Proof is one of the following:
    - SDOC declaring basic IPv6 functionality
    - Reference to IPv6 Ready program
    - Reference to a list which indicates the device was successfully tested. The list must be from a certified IPv6 independent testing lab, DoD lab or DOI.
- For router/NPD purchases, which includes equipment such as routers, switches, WAN accelerators, must meet DOI's advanced profile. Proof must include the following:
    - SDOC or reference to SDOC
    - Statement that SDOC meets the DOI advanced profile
- The advanced profile will be developed by the ESN to ensure compatibility with future IPv6 plans.
- Competitive procurements must include the following:
    - The customer must provide the IPv6 Profile with the procurement package.
    - SDOCs or SDOC references may be provided if they were obtained during market research.
    - The warranted official must obtain SDOCs from the vendor.

ESN Lab Responsibilities

- Provide Subject Matter Expert (SME) support for all ESN related acquisitions such as new firewalls or other Network Protect Devices used to provide ESN services.
- Handles USGv6 related processes, includes obtaining SDOCs from vendors and providing assistance to DOI customers.
- Provide profiles if needed for larger purchases.
- Serves as the authoritative USGv6 source within the Department.
- Maintain any DOI IPv6 related lists and make them available via the DOI portal.
- Note - Bureaus are encouraged to develop similar subject matter expert capabilities for network related equipment, but must obtain profiles from the ESN to ensure enterprise compatibility.

Define an Exception Process

- In some rare cases, exceptions may be granted to purchase non-IPv6 capable network equipment.
- Exceptions may apply in cases such as:
  - Adding IPv6 is cost prohibitive.
  - Equipment will not connect to the ESN network either directly or remotely.
- Submit exception request to the ESN System Manager for review and/or approval.
- If an exception is rejected, bureaus may elect to create a bureau POAM until the equipment has acceptable IPv6 capabilities or escalate via the chain of command.

Some Recent Observations

- FAQ: "What is an SDOC?"
- Appears overwhelming. The challenge is translating SP 500-267 into something your agency can understand.
- Acquisition staff will view this as another IT technical requirement.
- Be clear about the evidence to include in the procurement package.
- SDOCs should be re-useable. Build a library of references. Tie into architecture processes.
- Market forces should drive increase in IPv6 functionality.