

A Scalable Named Information Network

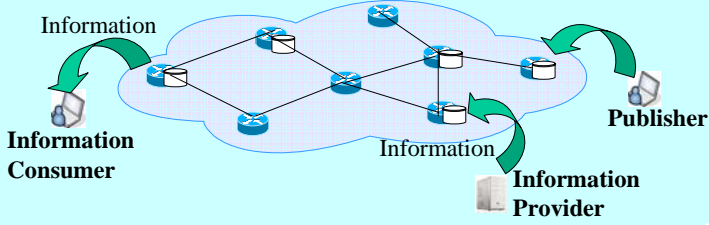
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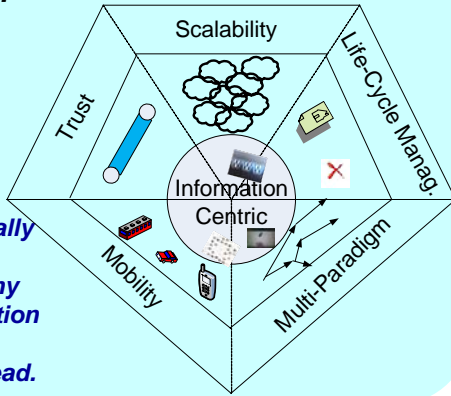


Information-Centric Network:

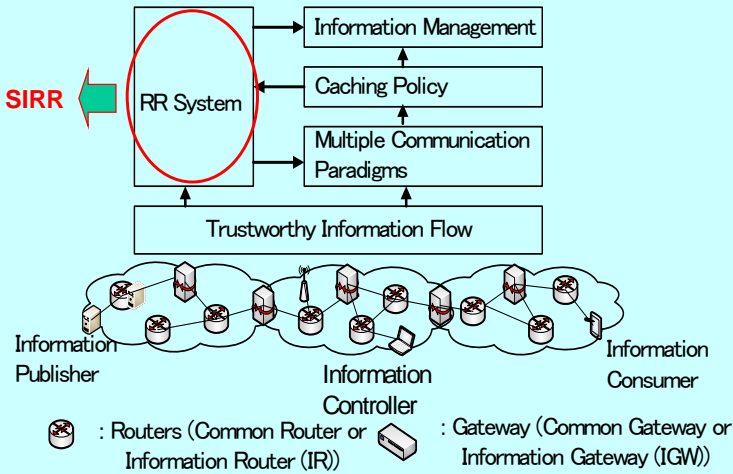


Goals & Design Requirements:

Design a network architecture that naturally and globally supports efficient and trustworthy information dissemination and retrieval with low communication overhead.



Proposed Named Information Network Components



Naming Method

LIN [Japan] [NICT] [NWGN] [NA]

GIN [Japan] [NICT] [NWGN] [NA] # Domain Name

ID_{IGWi} = Hash (IGW_i)

Packet Types & Formats

Name	Name	Requestor ID
Signature & Meta Data	Signature	Name
Publication Policy	Requestor ID	Signature & Meta Data
	Preferences	Data

Data Reg. Packet Data Request Packet Data Retrieval Packet

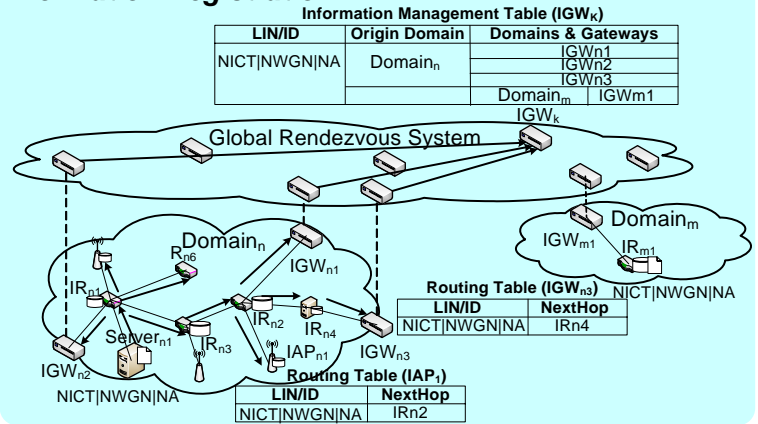
IGW Functions

Information Management Table		
LIN	Origin Domain	Domains & Gateways
--		
LIN ₁	Domain ₁	IGW ₁₁
		IGW ₂₁
		IGW ₂₂
--		
LIN _k	Domain _k	IGW _{k1}
		IGW _{M1}
		IGW _{N1}
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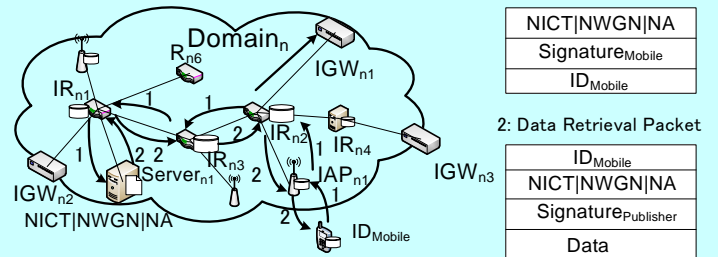
IR Functions

Caching Memory/ Storage		Routing Table		Finger Table		
Name	Information	LIN/ID	NextHop	Start	Int.	Succ.
---		IGW ₁	Locator ₁	ID _{IGW1} +2 ⁰ [a, b)		ID _{IGW1}
LIN ₅		ID ₁	Locator ₂	ID _{IGW1} +2 ¹ [b, c)		ID _{IGW2}
---		LIN ₁	Locator _m	--		
---		Fault	Failure			

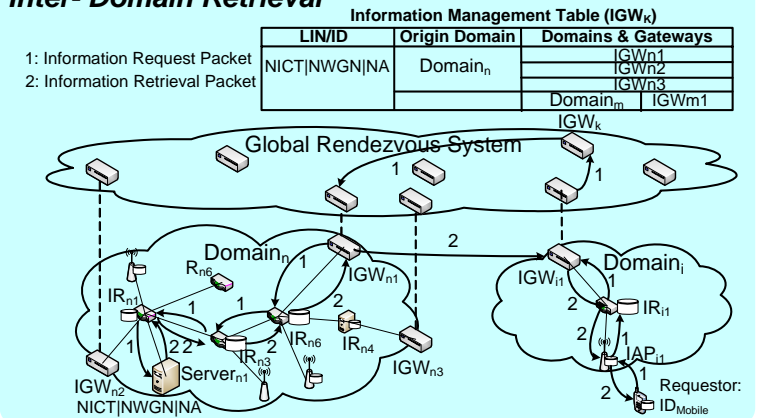
Information Registration



Intra-Domain Retrieval



Inter-Domain Retrieval



Ongoing & Future Works:

S²NMS Proactive security protection architecture providing mutual authentication service

Trustworthy Information Flow Enable information flow to be trustworthy