

afnic
Internet
made in France

French Japanese Internet Governance Conference

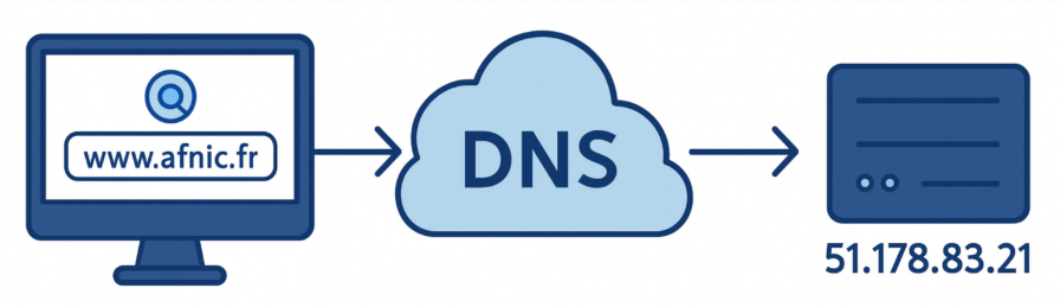
Building Trust in the Internet: *A DNS Perspective*

– Sandoche BALAKRICHENAN

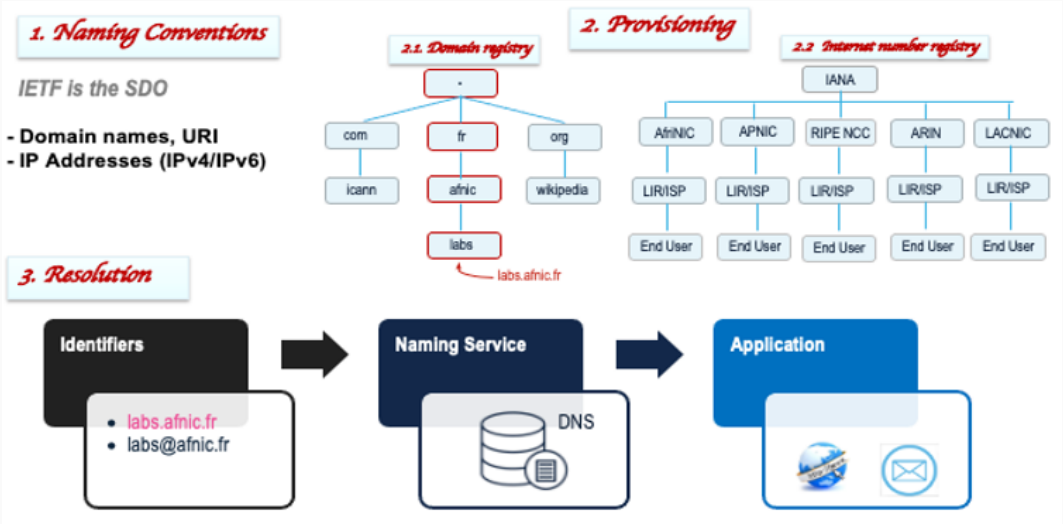
Why Trust Matters Online?

- The Internet was built for connectivity, not trust.
- Users face misinformation, phishing, impersonation.
- Building confidence requires both technical and institutional trust.

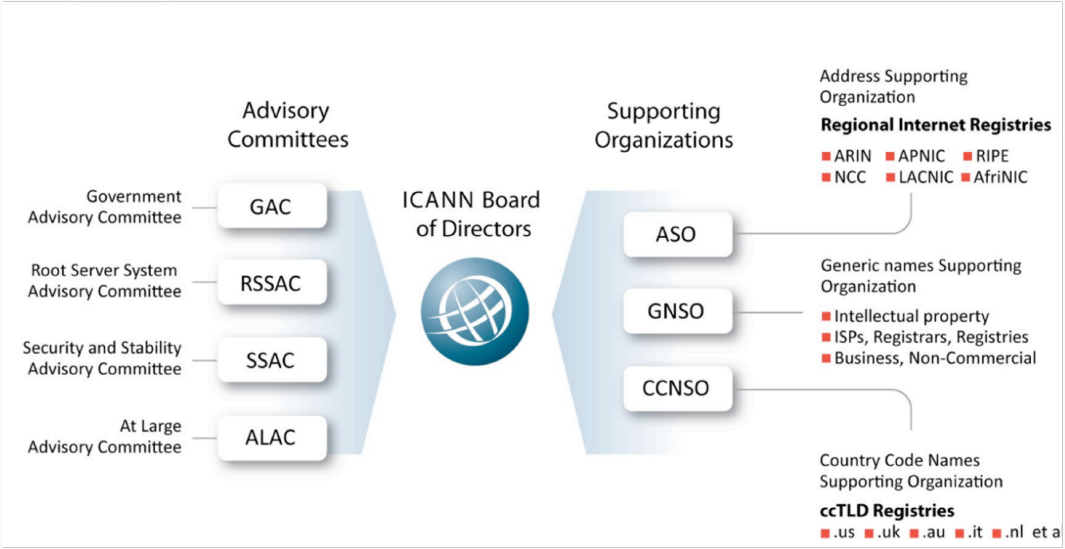
DNS - The Internet’s PhoneBook



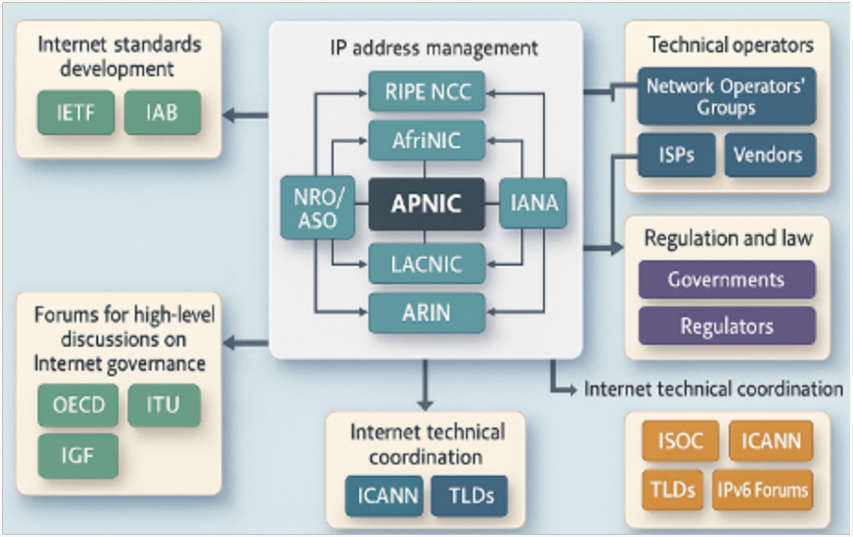
Multistakeholder Governance in Practice



Domain name Governance



IP address Governance



Evolution of DNS Standardization at the IETF: From Identity to Security

Early Phase – Identity and Naming (1983–1999)

- **RFC 882/883 (1983):** Initial DNS design
- **RFC 1034/1035 (1987):** Core DNS architecture

Middle Phase – Securing Identity (1999–2010)

- **DNSSEC (RFC 2535 → RFC 4033–4035):** Introduced cryptographic signatures to ensure data integrity.

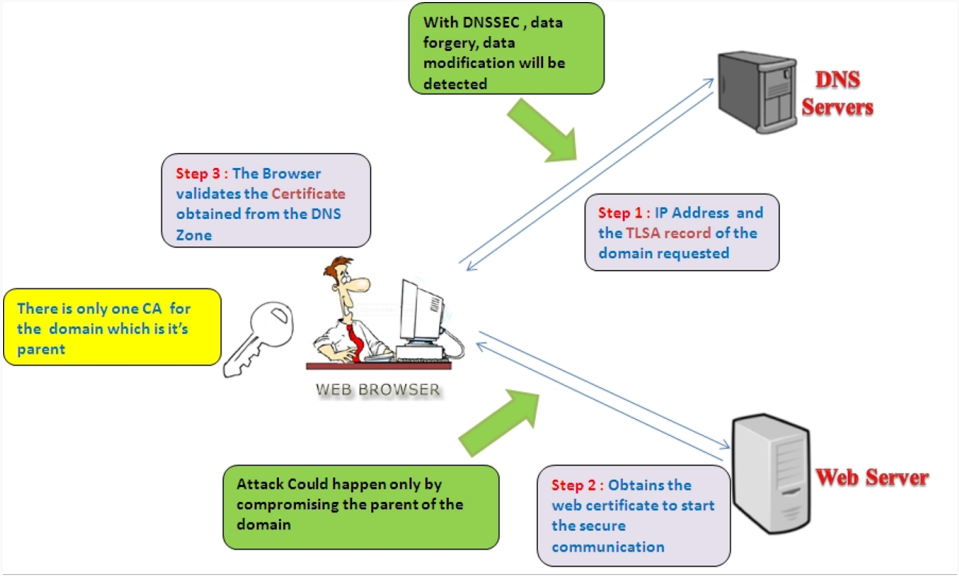
Modern Phase – DNS as a Security and Trust Framework (2010–present)

- **DANE (RFC 6698):** Binding TLS certificates to DNS via DNSSEC.
- **DNS over HTTPS (DoH), DoT, ODoH:** Privacy and confidentiality layers.

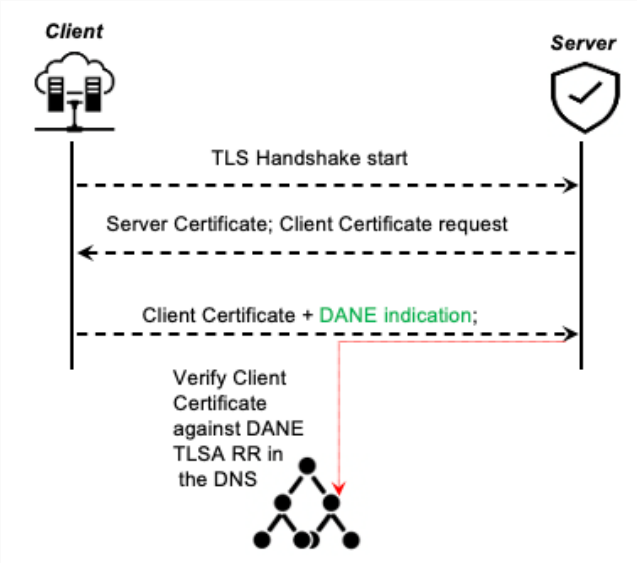
IETF Working Groups:

- `DNSEXT, DANE, DPRIVE, DNSOP`

End-to-End Security with the decentralised DNS infrastructure



Mutual Authentication using DANE - IoT Use Case



Afnic's Research Panaroma

DONE

WINGS

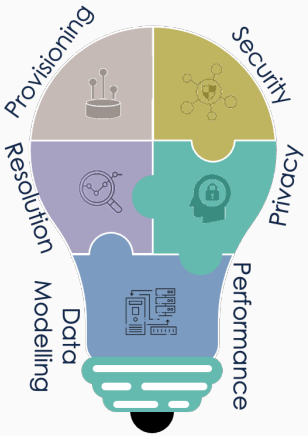
Widening interoperability for networking Global supply Chains

Ongoing

LoRa DNS Service

Ongoing

Chaire SCHC



Done

DINS*

DNS Naming and Services for Secure Seamless IoT

Done

PIVOT*

Privacy-Integrated design and Validation in the constrained IoT

Ongoing

NFT Registry

Conclusion: Trust by Integrating Technology, Policy, and Standardisation

- Trust is socio-technical - not purely cryptographic.
- Combine open standards, governance, and ethical oversight.
- “Trust must be built into the architecture and upheld in practice.”

Thank You

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Questions?