LPWAN Architecture and general newcomer presentation

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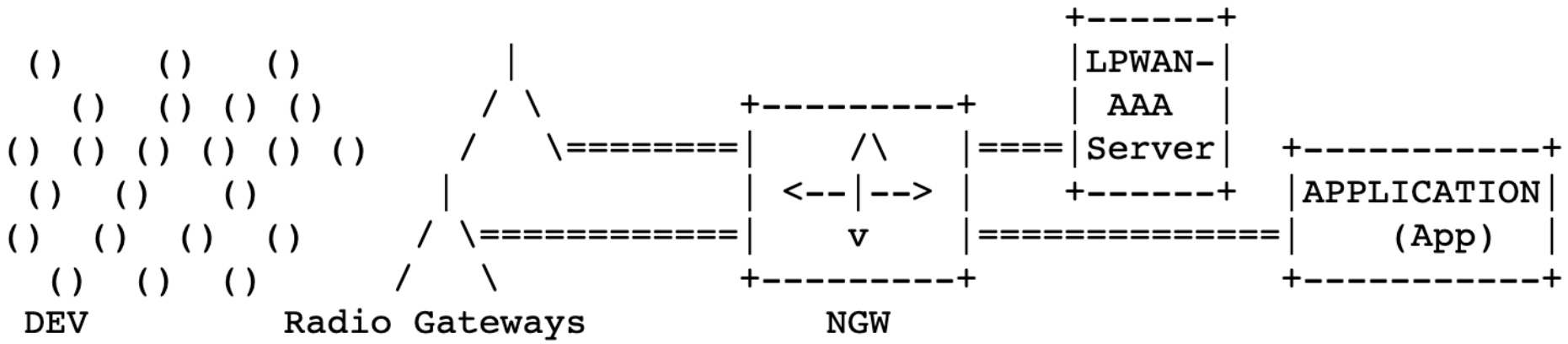
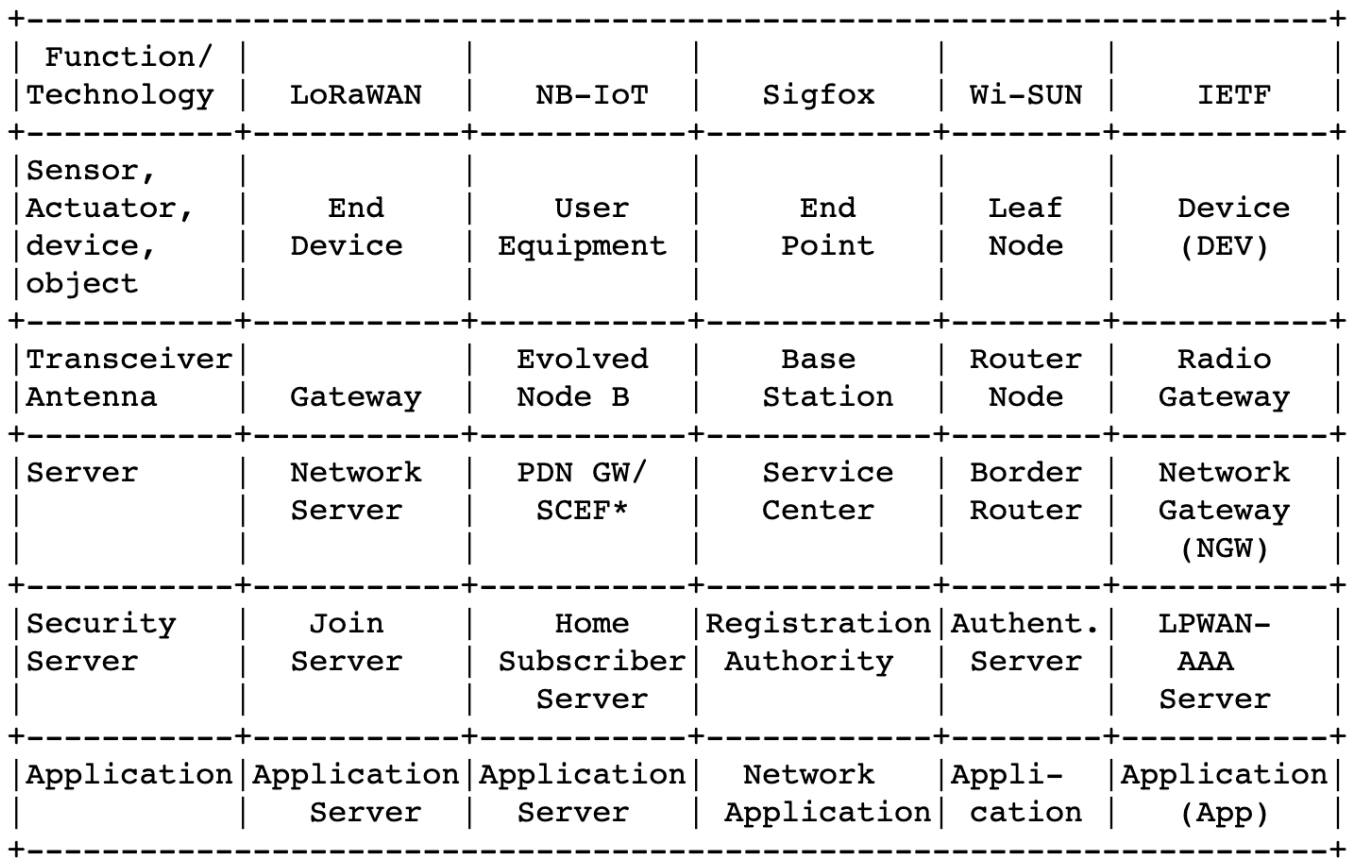
Low-Power Wide-Area Networks



RFC 8376 : LPWAN Architecture



Function/ Technology	LoRaWAN	NB-IoT	Sigfox	Wi-SUN	IETF
Sensor, Actuator, device, object	End Device	User Equipment	End Point	Leaf Node	Device (DEV)
Transceiver Antenna	Gateway	Evolved Node B	Base Station	Router Node	Radio Gateway
Server	Network Server	PDN GW/ SCEF*	Service Center	Border Router	Network Gateway (NGW)
Security Server	Join Server	Home Subscriber Server	Registration Authority	Authent. Server	LPWAN-AAA Server
Application	Application Server	Application Server	Network Application	Appli-cation	Application (App)

Collisions

Duty cycling

Acknowledgements

Data-over-NAS

In-band

Guard-bands

License free

In licensed spectrum

No scheduling

Star topology

ALOHA

25 mW transmission power

15-50 km rural outdoor

Low-Power Wide-Area Networks

20 years on simple battery

2-3 km urban indoor

Device-initiated com

Huge densities

Low throughput

Asymmetric links

Throughput:
Hundreds bps

Payload Size:
Tens of Bytes

Uplink:
Few Messages

Downlink:
Even fewer messages

SCHC Architecture

- Provide the reference architecture
  - Modes:
    - SCHC Device/SCHC Gateway
    - SCHC Peers

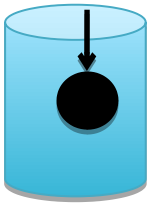
- RFC 8724 and Rules
  - Introduces Yang Data Model
  - Discusses rule creation and update
  - Discusses rule installation and discovery

SCHC Architecture

Device Application

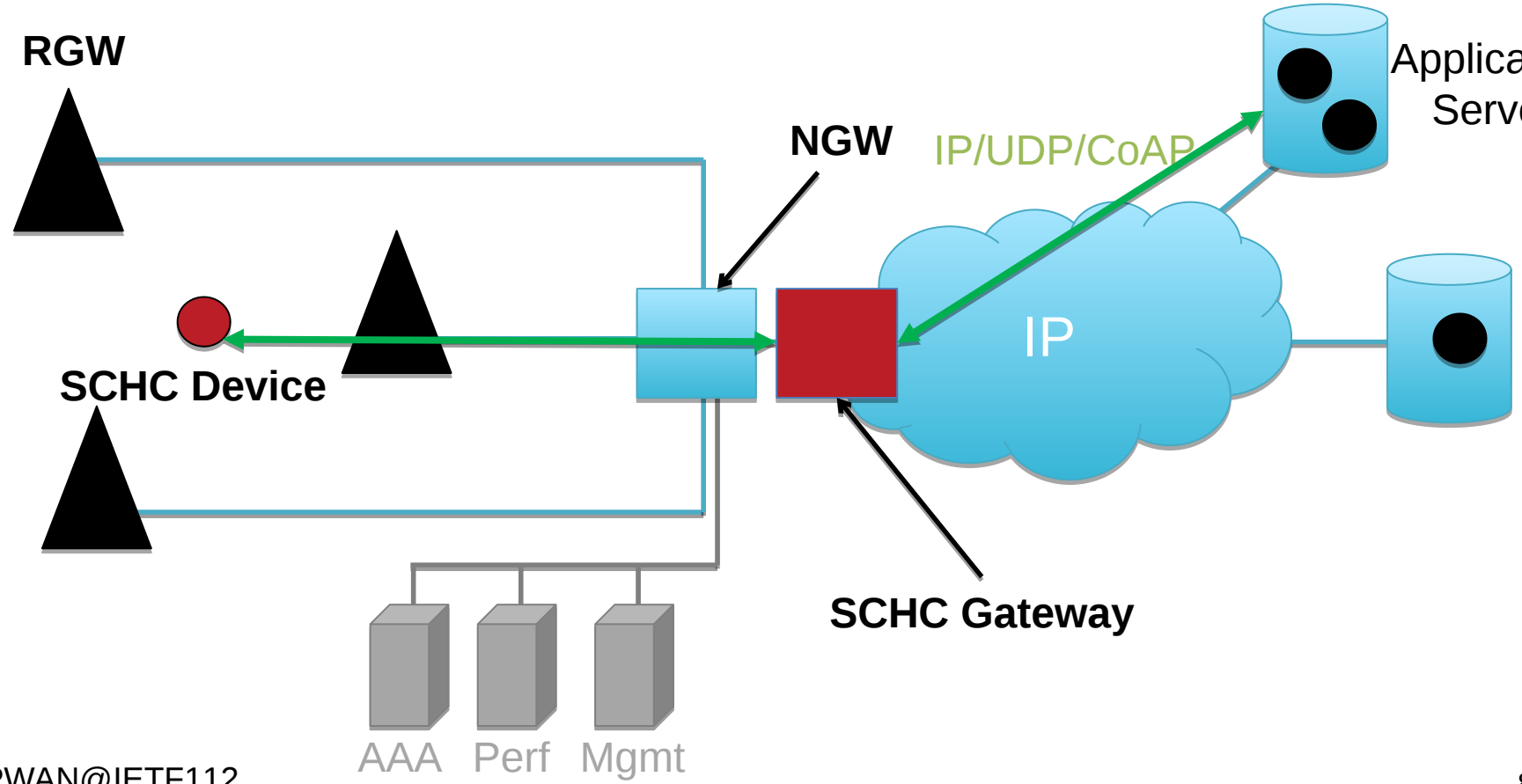
End-Device

Network Application

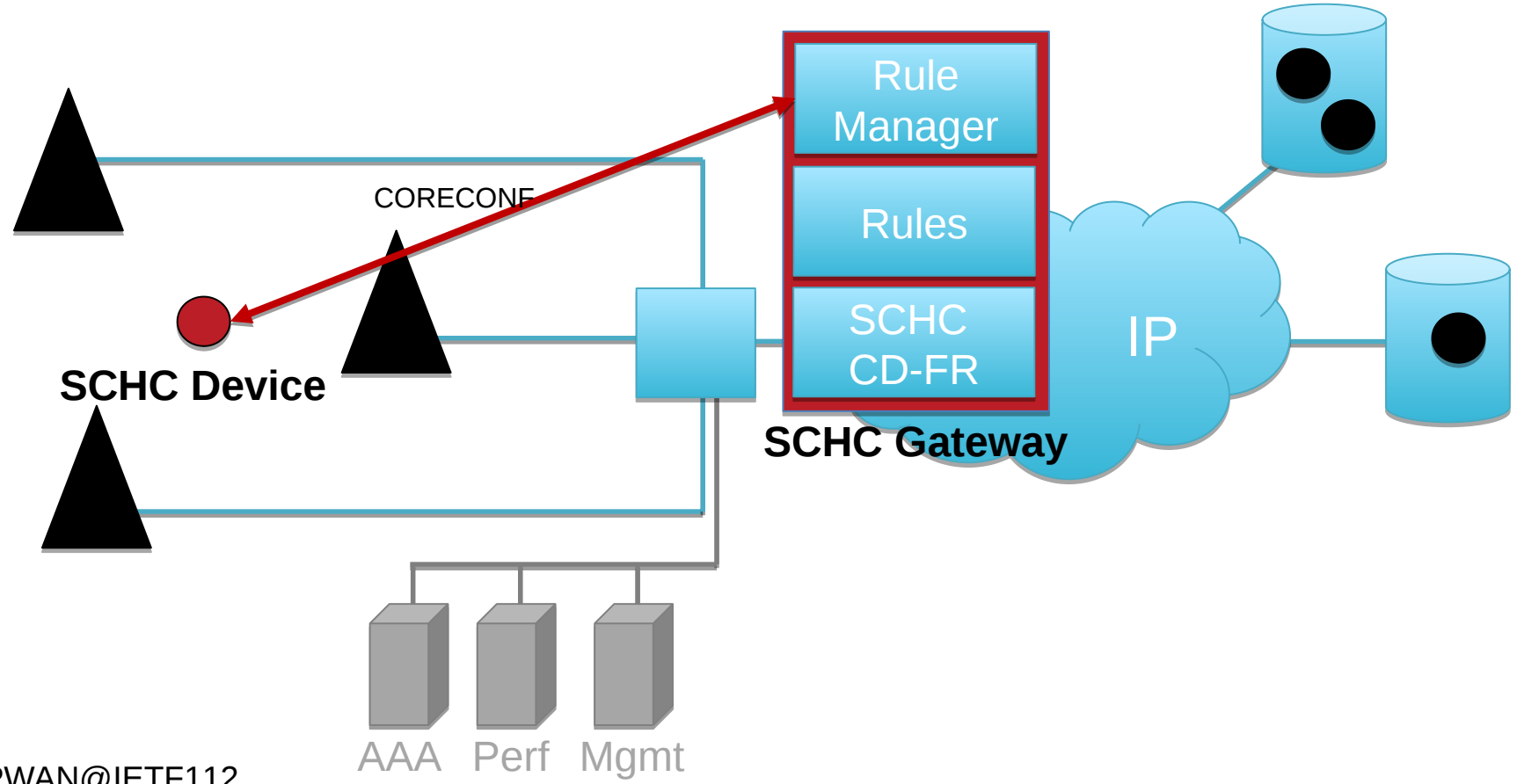


Application Server

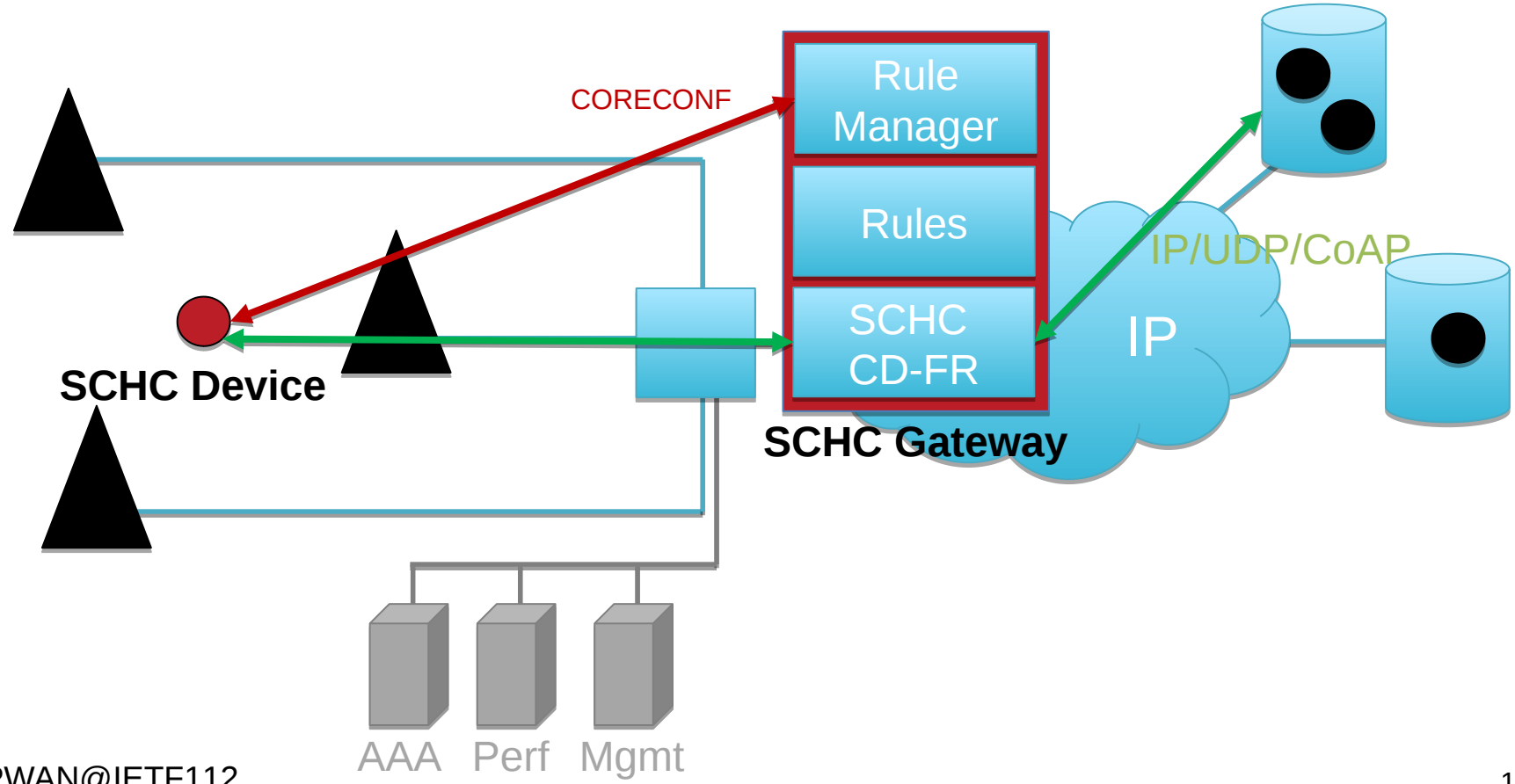
SCHC Architecture



SCHC Architecture



SCHC Architecture



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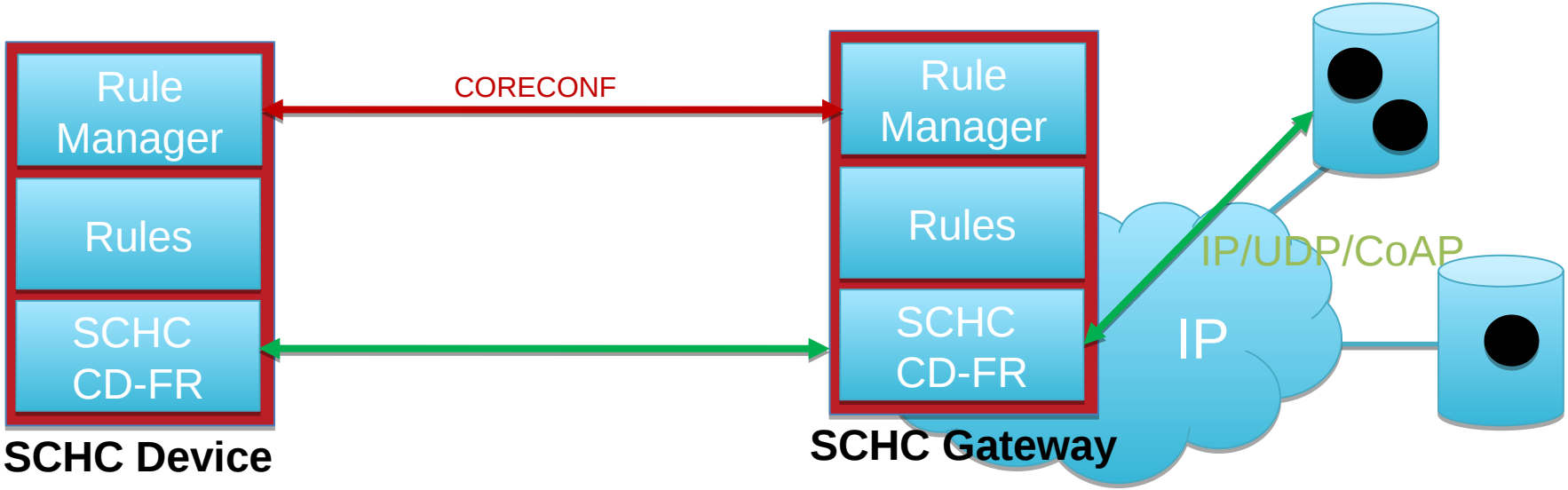
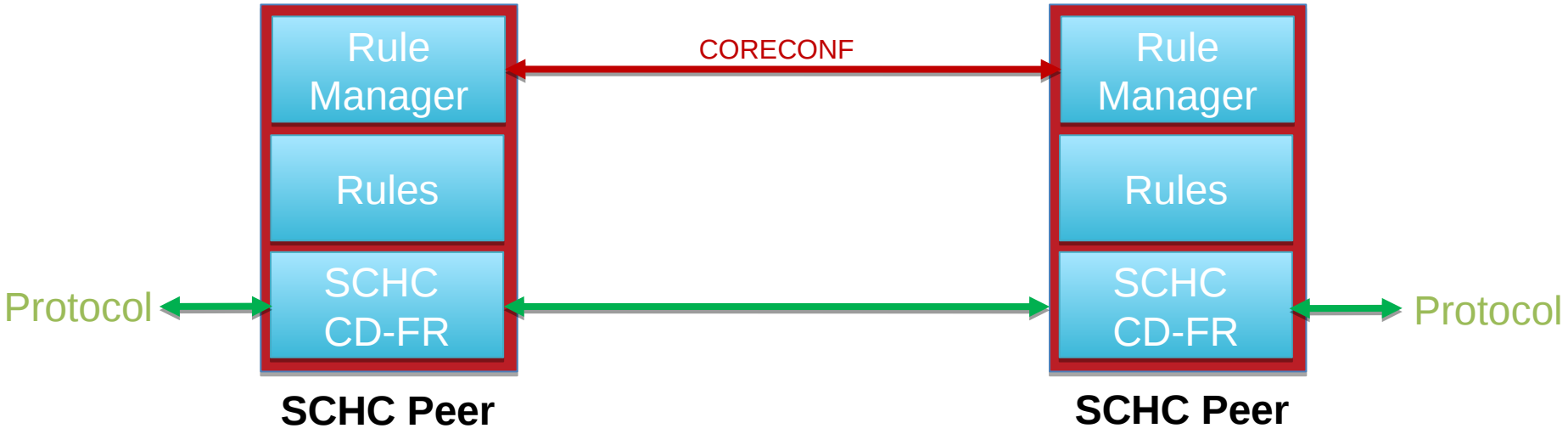


SCHC Architecture



Next Steps in Architecture

- Steps to Provision and Install a SCHC Device
- Steps to Generate and Publish Rules
- Steps to Provision Network for Device Type
- Steps to Identify Device Type and get Rule Set
- State maintenance in the Network
- Steps to Deprecate (forget) a Device Type