

# LPWAN Architecture and general newcomer presentation

Alexander Pelov (a@ackl.io)

Pascal Thubert (pthubert@cisco.com)

Ana Minaburo (ana@ackl.io)

# Low-Power Wide-Area Networks

25 mW transmission power

# **Low-Power** Wide-Area Networks

20 years on simple battery

15-50 km rural outdoor

# Low-Power **Wide-Area** Networks

2-3 km urban indoor

No scheduling

Star topology  
ALOHA

# Low-Power Wide-Area **Networks**

Device-initiated com

Huge densities

Asymmetric links Low throughput

Collisions

Duty cycling

Acknowledgements

Data-over-NAS In-band

Guard-bands

**License free**

**In licensed spectrum**

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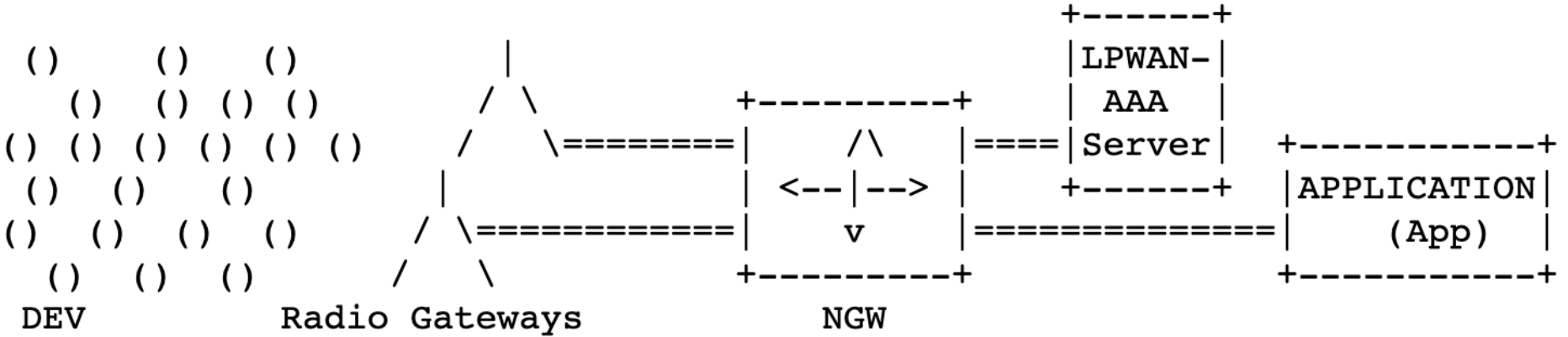
x 10%

100 bps  
(50 kbps max)

12 byte payload  
(typically 50 bytes)

140 messages  
uplink

4 messages  
downlink



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)

# 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

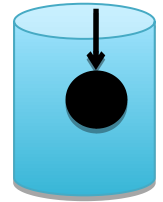


Device  
Application



End-Device

Network  
Application

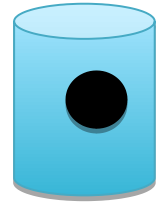
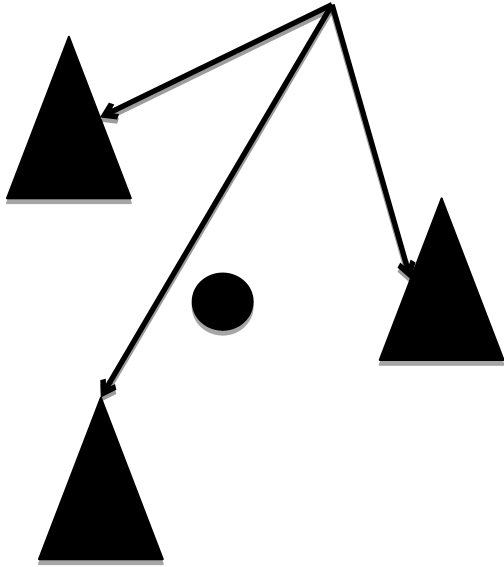


Application  
Server

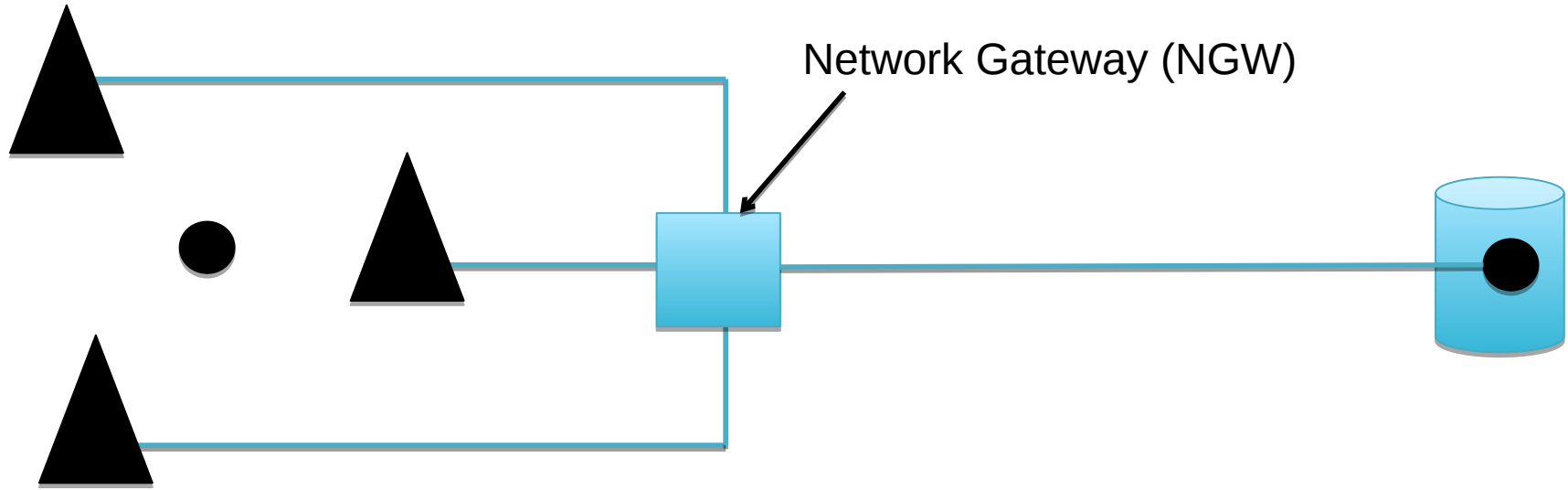
# SCHC Architecture

LPWAN

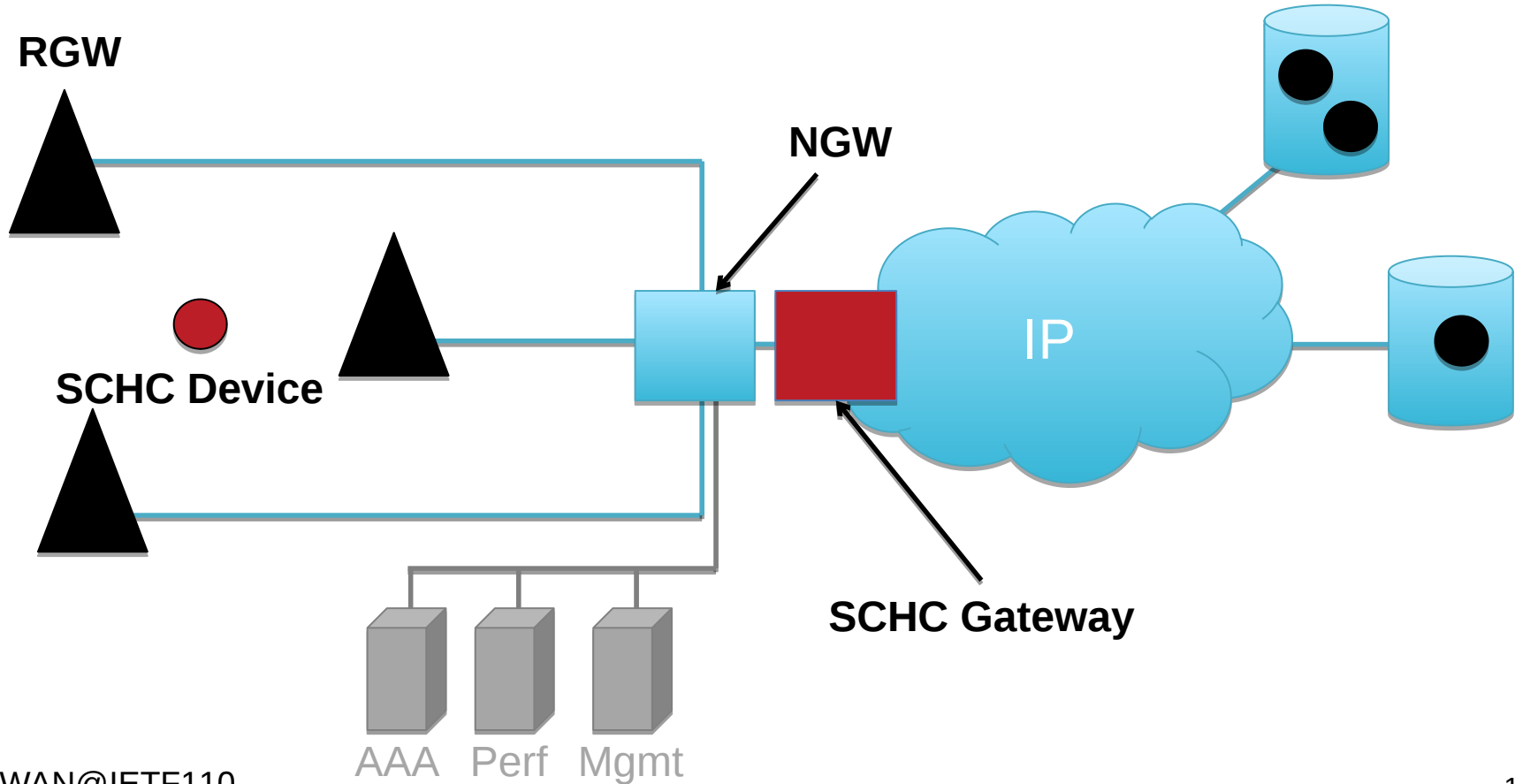
Radio Gateways (RGW)



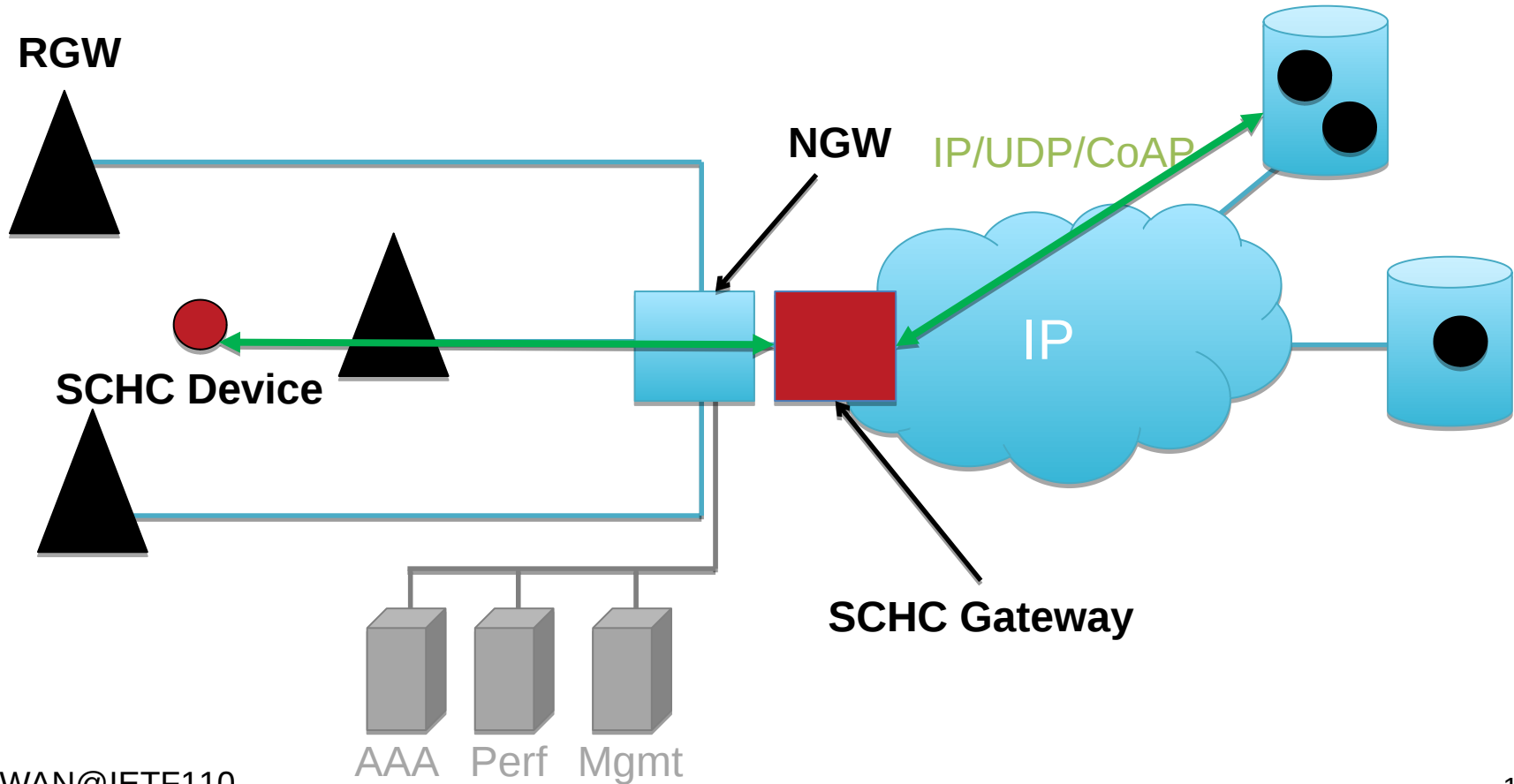
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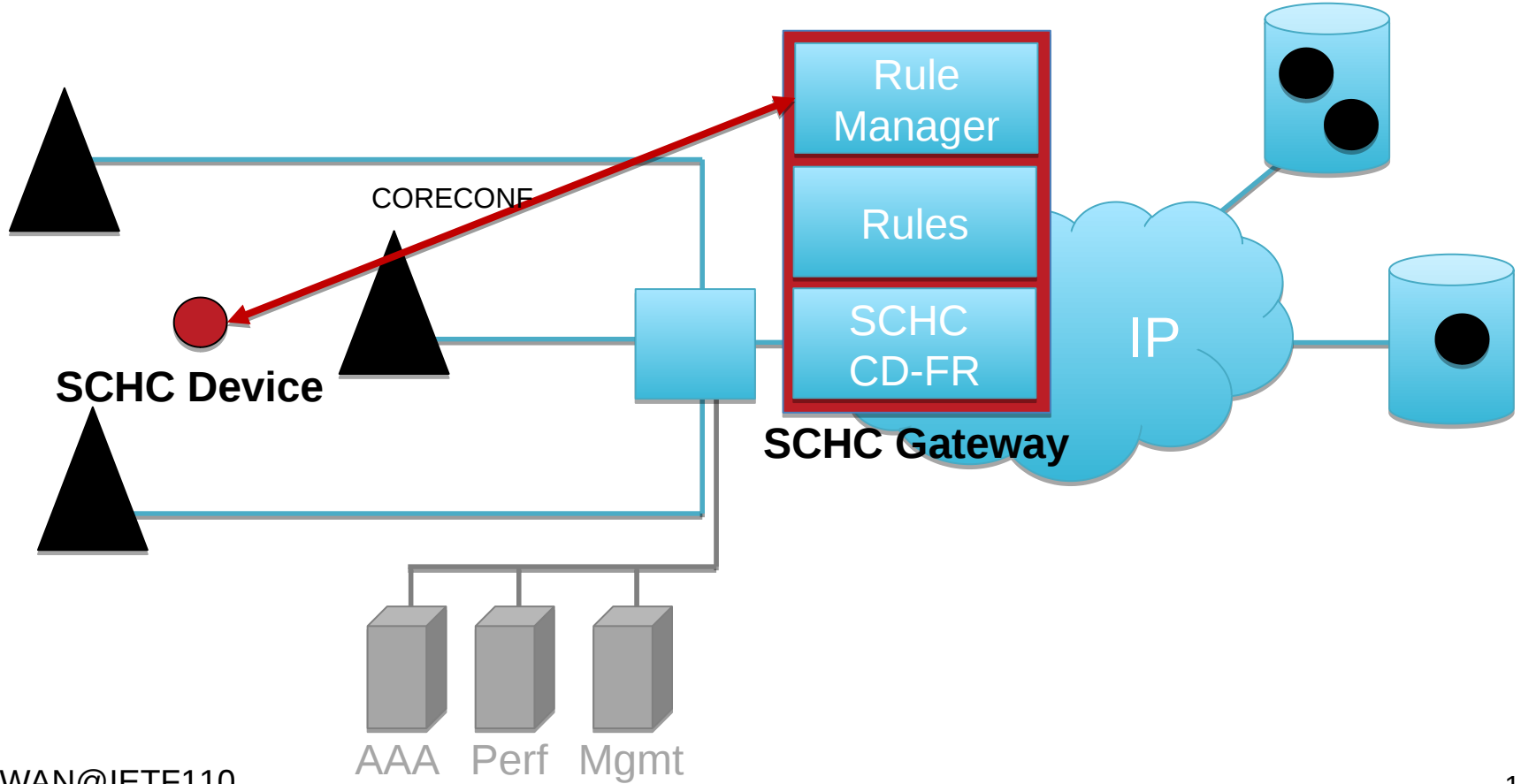
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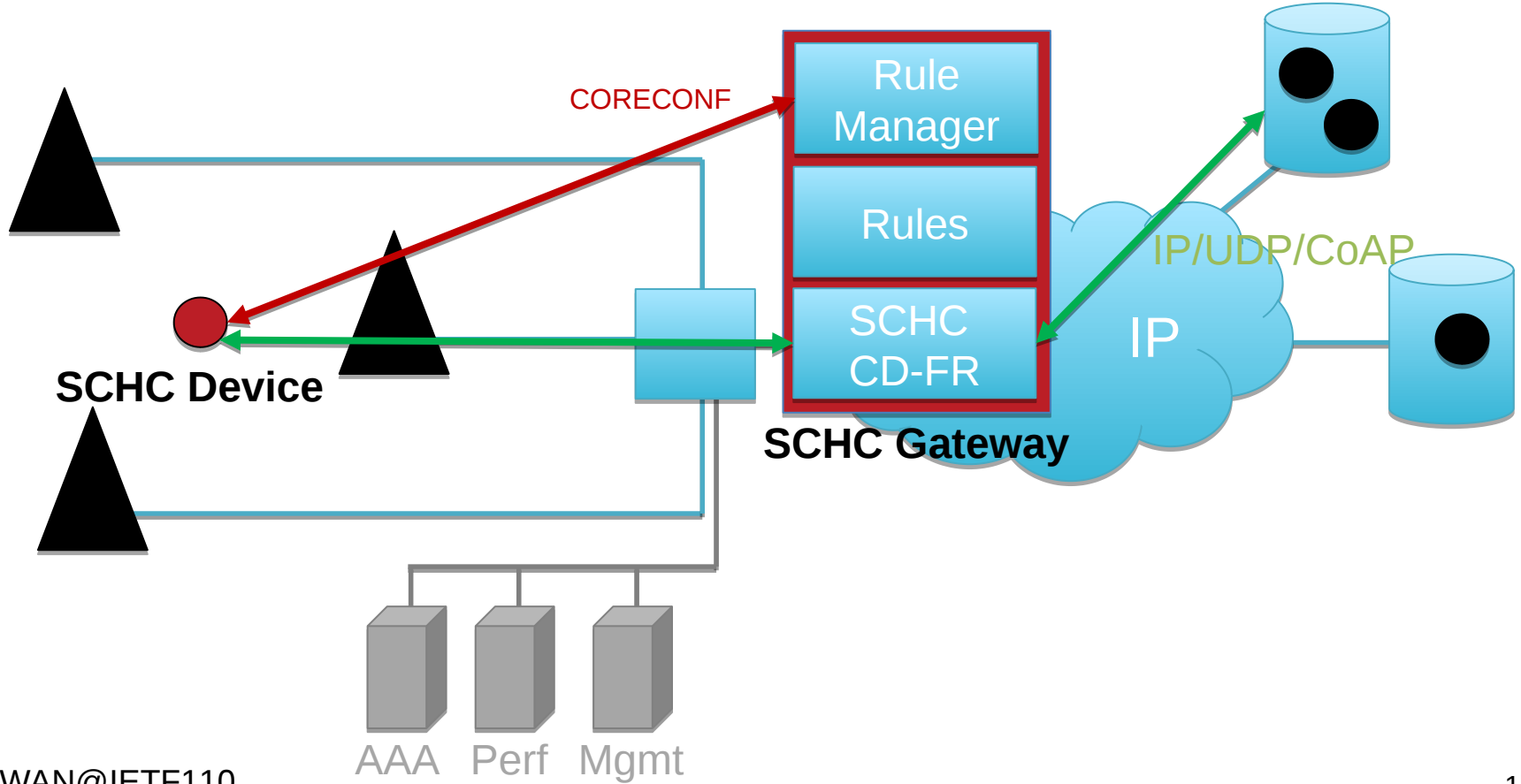


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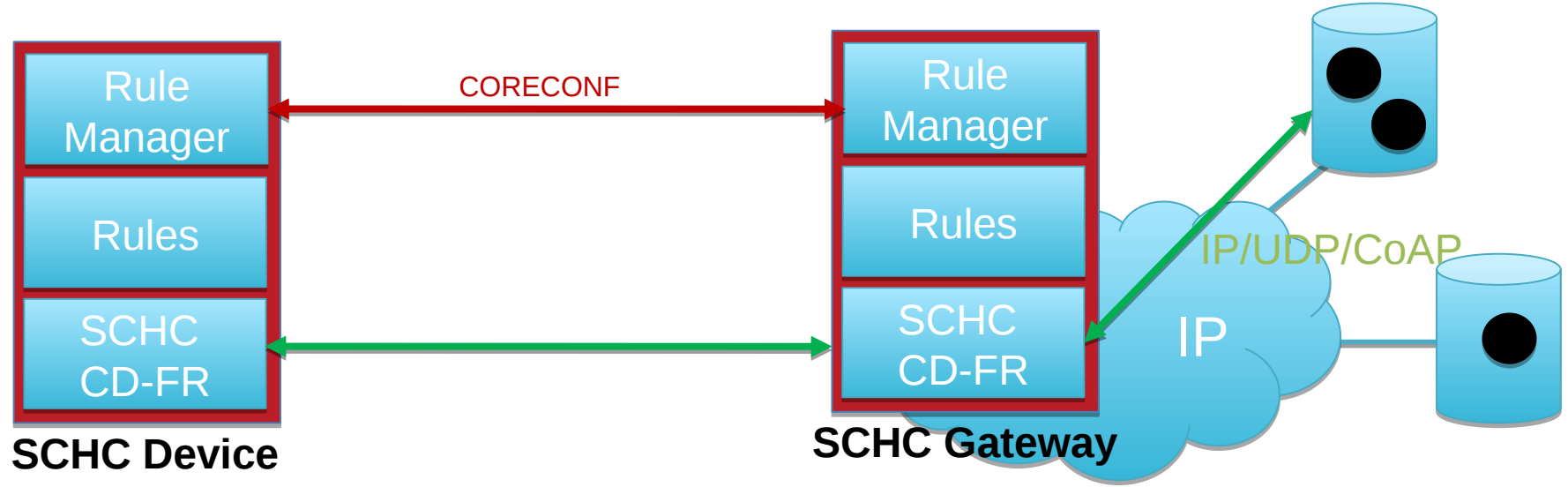




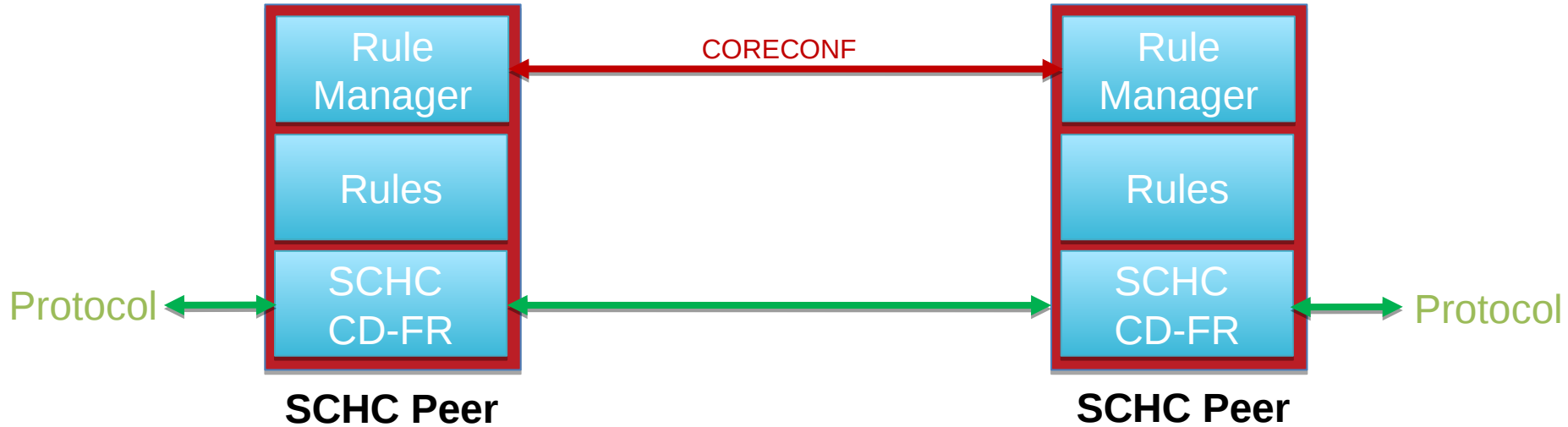
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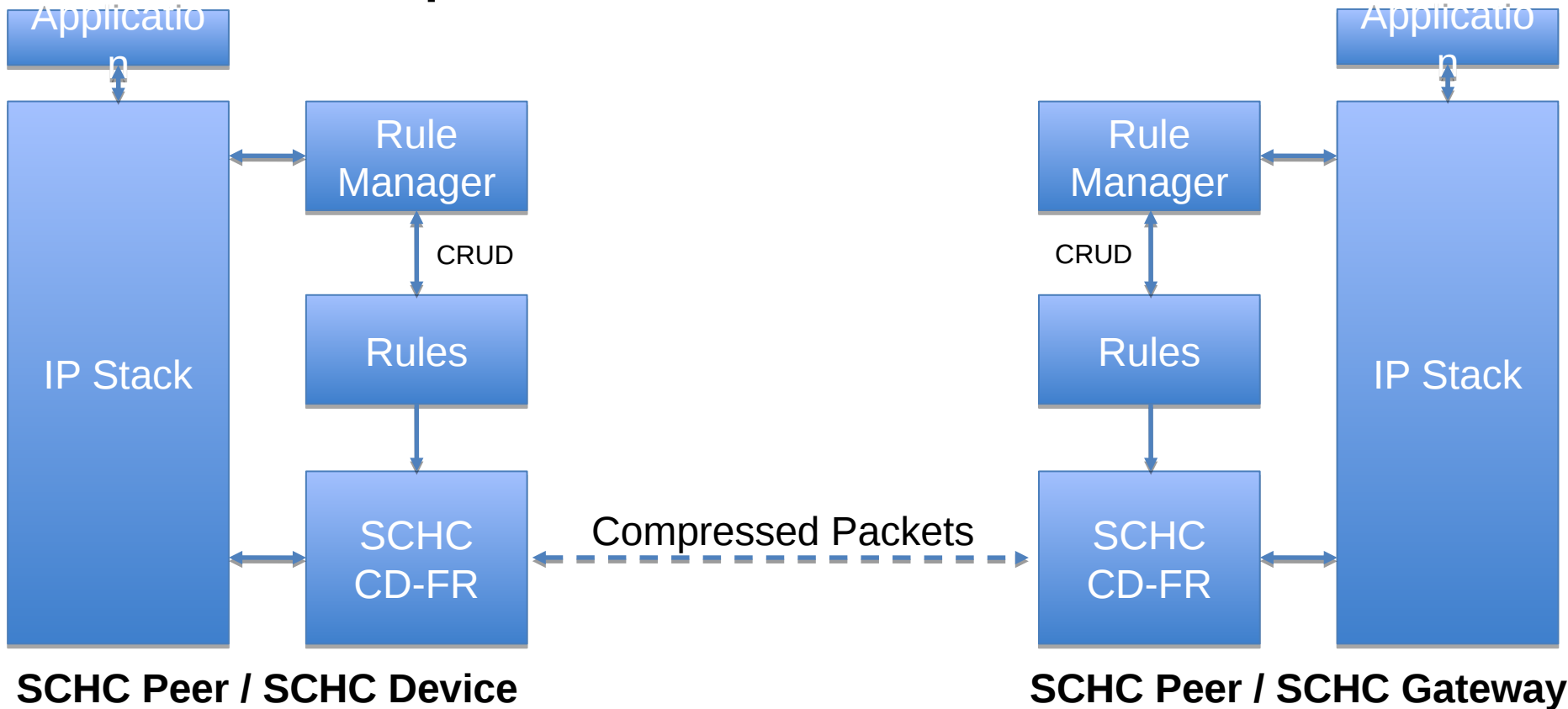
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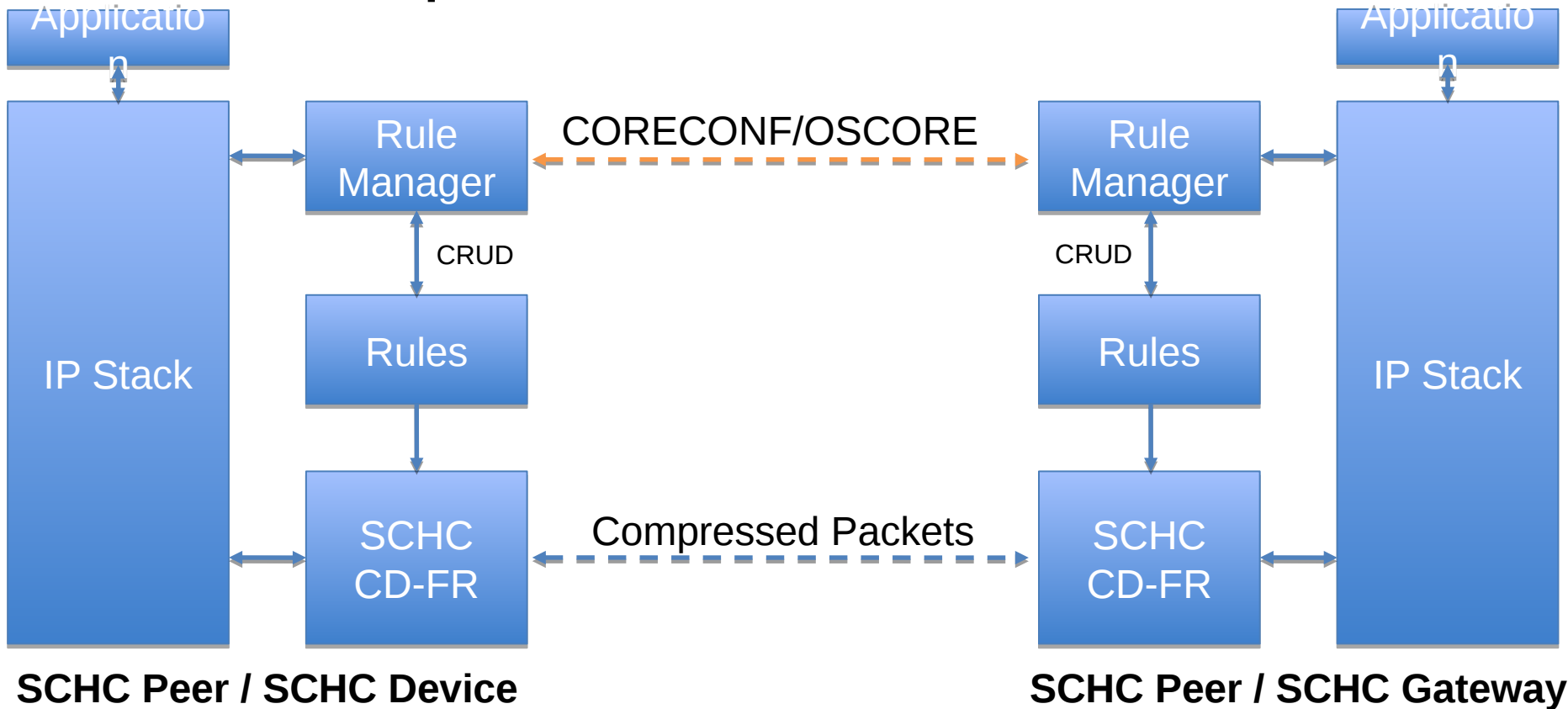
# SCHC Architecture



# Example of Network-level SCHC



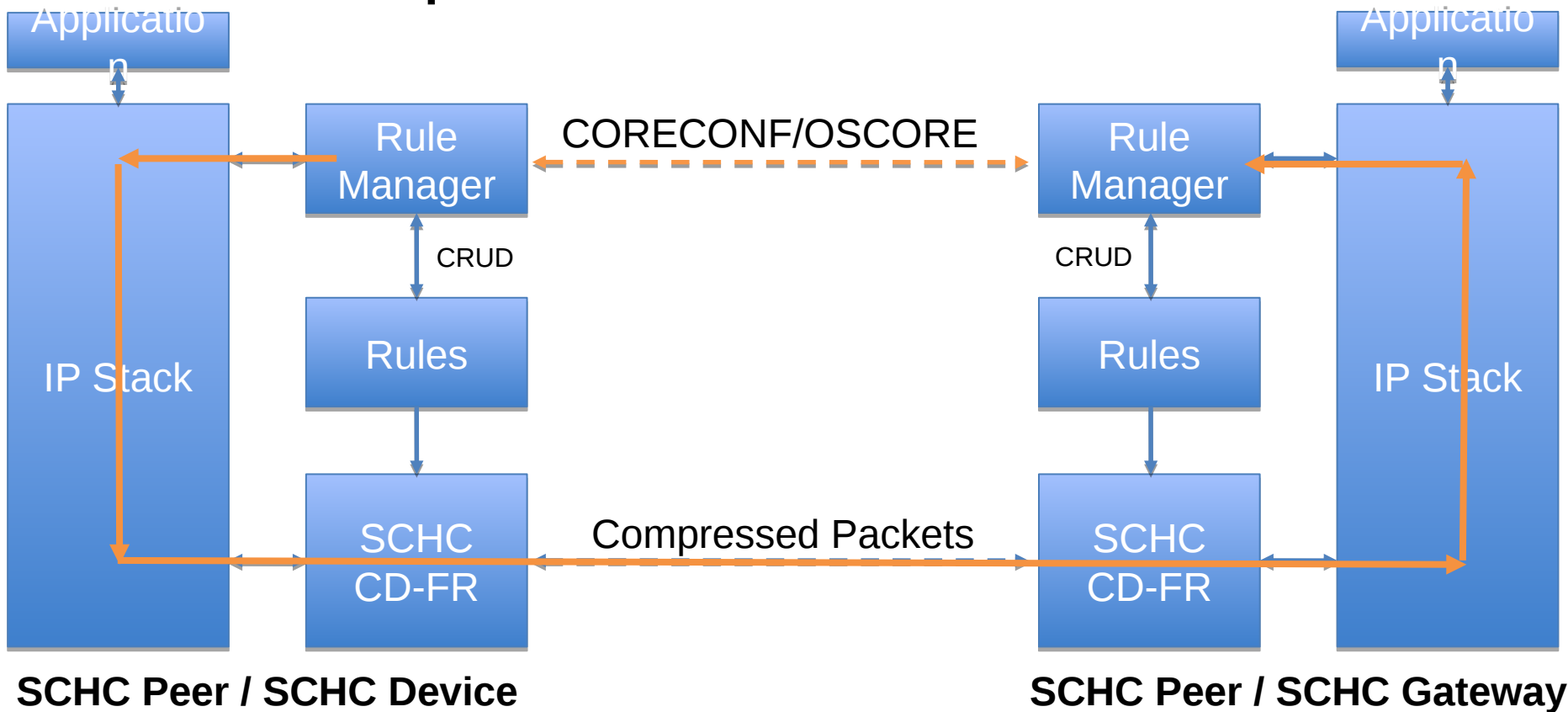
# Example of Network-level SCHC



**SCHC Peer / SCHC Device**

**SCHC Peer / SCHC Gateway**

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**SCHC Peer / SCHC Device**

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