

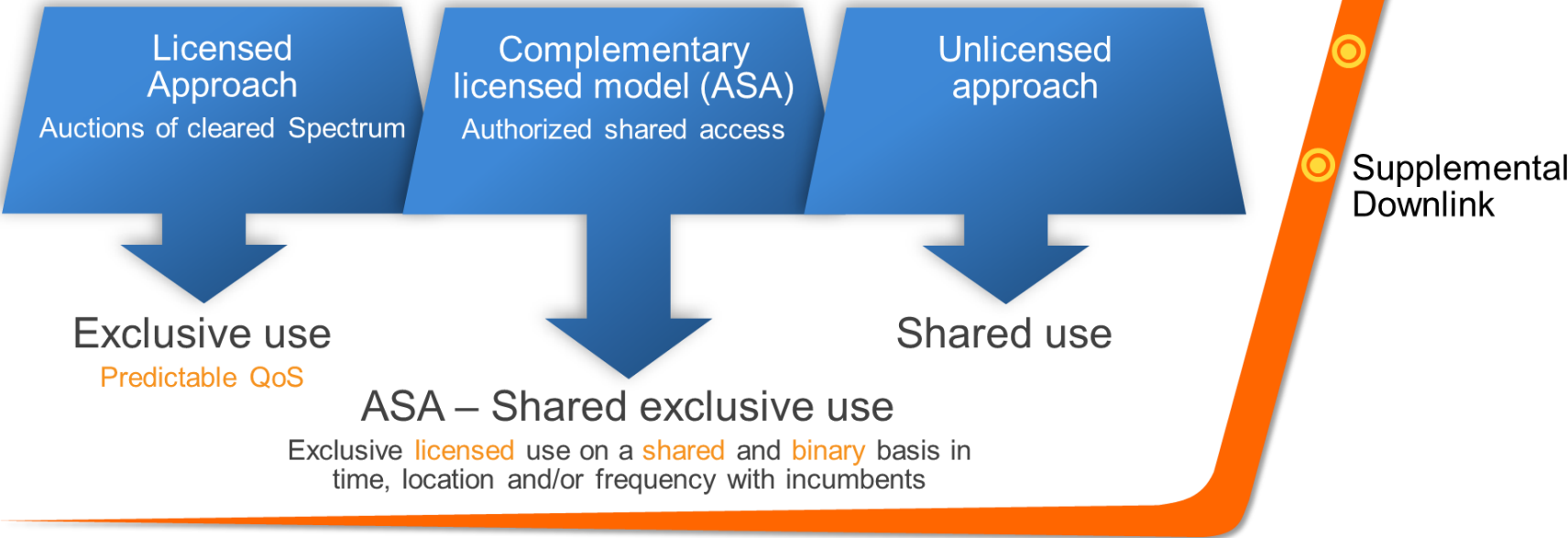
# Authorized Shared Access (ASA)

A New Licensed Model to  
Access Underutilized Spectrum

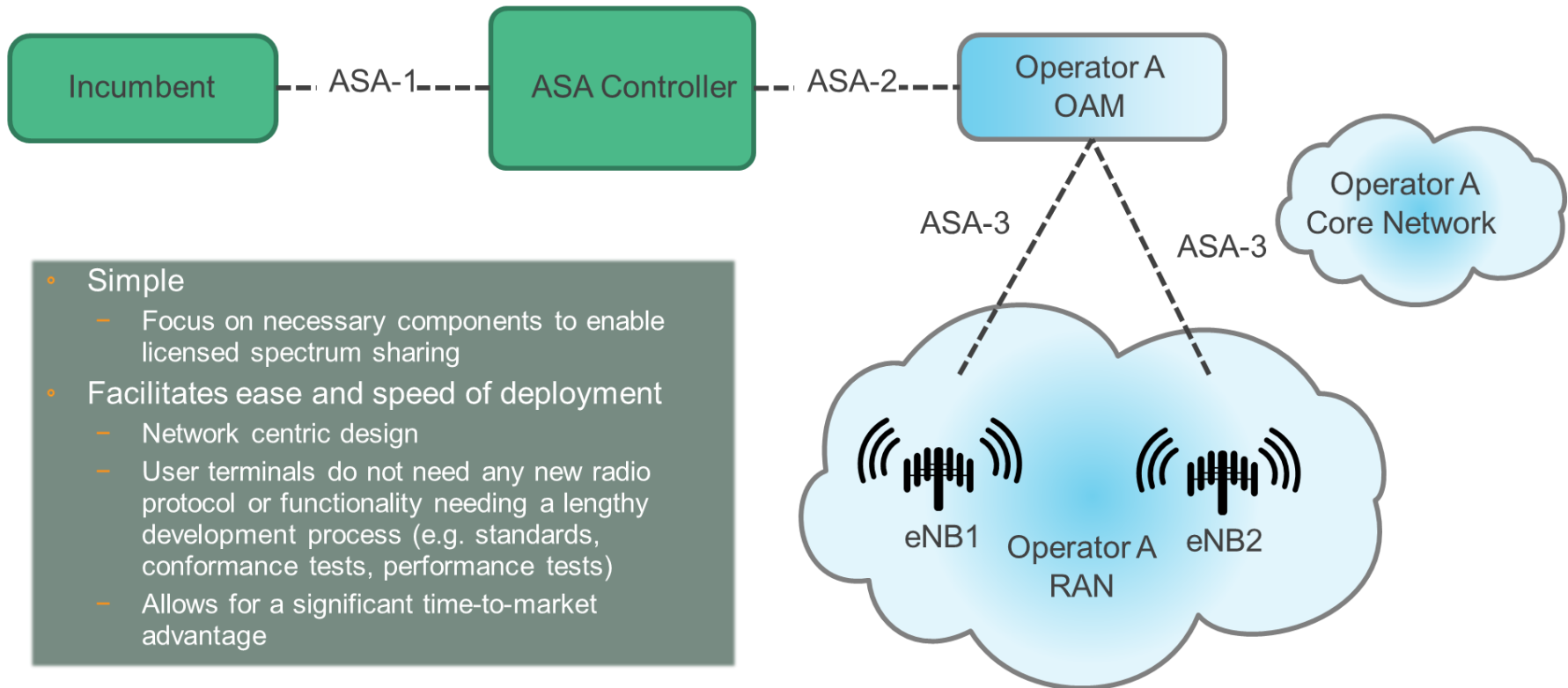
Qualcomm Inc.

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# Authorized Shared Access (ASA)



# ASA – Logical Architecture



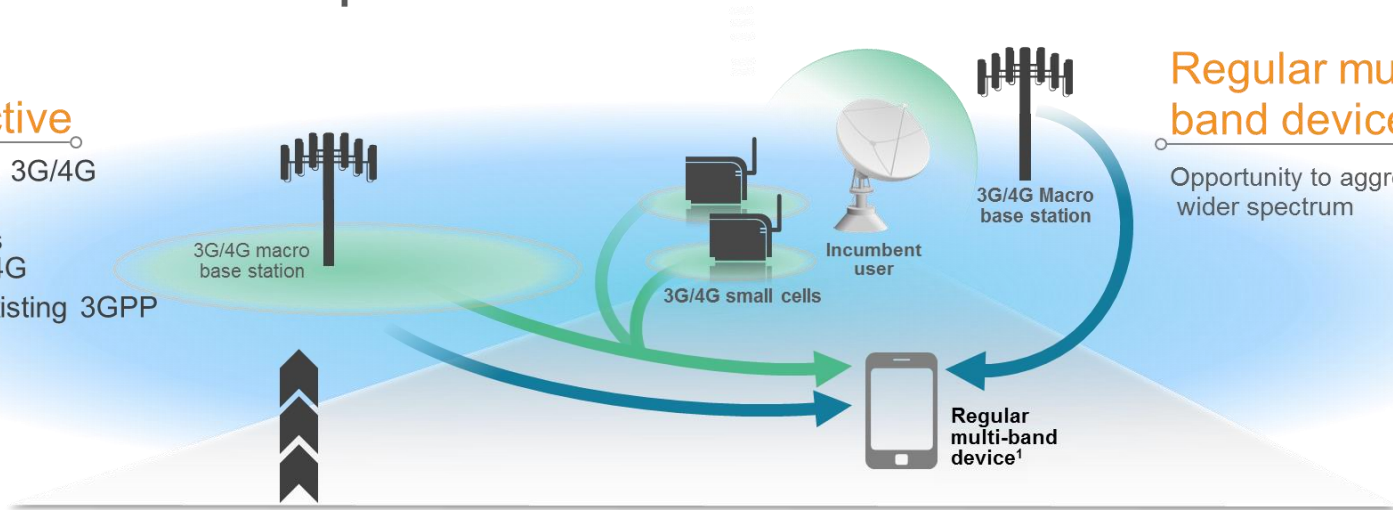
# ASA – Relationship between Licensee and Incumbent

## Cost-effective

- Use available 3G/4G infrastructure
- Complements installed 3G/4G
- Leverages existing 3GPP standards

## Regular multi-band device<sup>1</sup>

- Opportunity to aggregate wider spectrum

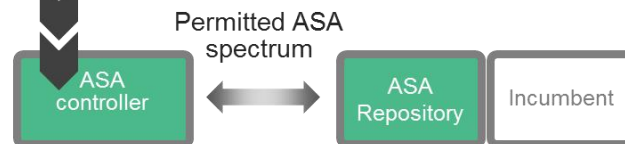


## Simple

- Simple technology with defined interfaces
- Regulatory framework

## Controlled

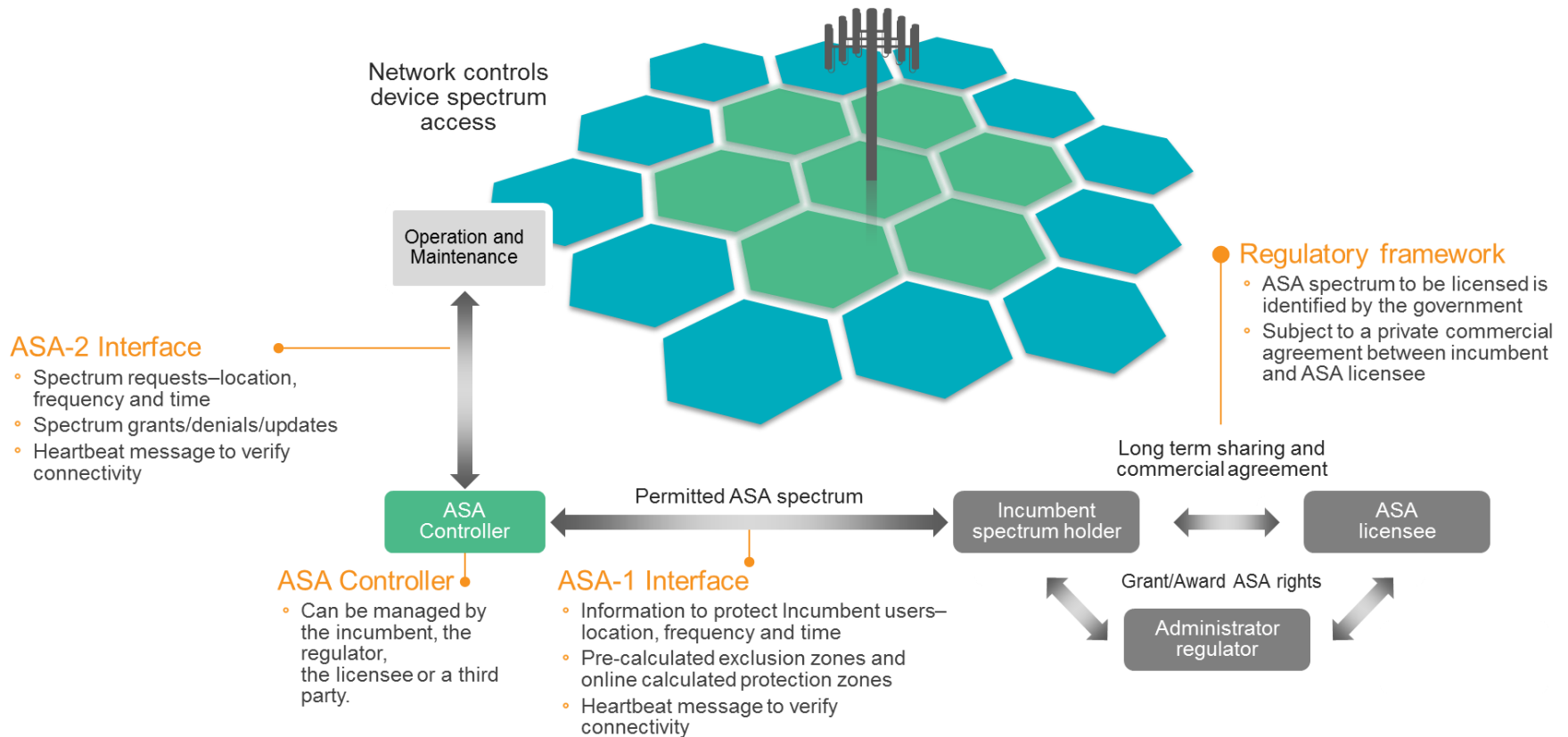
- Enables predictable quality of service
- Protects incumbent from interference



<sup>1</sup>No device impact due to ASA, just a regular 3G/4G device supporting global harmonized bands targeted for ASA. Carrier aggregation would be beneficial to aggregate new ASA spectrum with existing spectrum, but is not required.

<sup>2</sup>The O&M system of the ASA rights holder enforces the permitted bands

# ASA – Regulatory and Technology Framework



# ASA – Licensed Harmonized Spectrum

Leveraging global, available 4G technologies to ensure economies of scale

ASA CANDIDATE EXAMPLES	2.3 GHz (100 MHz)	2.6 GHz (100+ MHz)	~3.5 GHz (100-200 MHz)	3.4-3.8 GHz
Applicable Regions	EUROPE (Traditionally licensed in e.g. India)	MENA (Traditionally licensed in e.g. Europe)	USA, EU, LATAM, SEAP	Key band for licensed small cells Traditional licensed in most regions ASA licensed in US
Incumbent Users	Telemetry, public safety, cameras	Various	Naval Radar (US) Satellite (EU, LATAM, SEAP)	2.3-2.4 GHz
Suitable Technology	LTE TDD	LTE FDD/TDD	LTE TDD	LSA (Licensed Shared Access) Endorsed by EU 27 member states
Possible Launch	~2015			Endorsed by CEPT Standardized by ETSI

<sup>1</sup>3GPP has already defined bands 42/43 for 3.4 GHz to 3.8 GHz, 3.5GHz in the US defined as 3550 – 3650 MHz, but up to 200MHz could be targeted for ASA in e.g. SEAP/LATAM. Note that ASA targets IMT spectrum bands, but the concept can be applied generally to all spectrum bands and other technologies