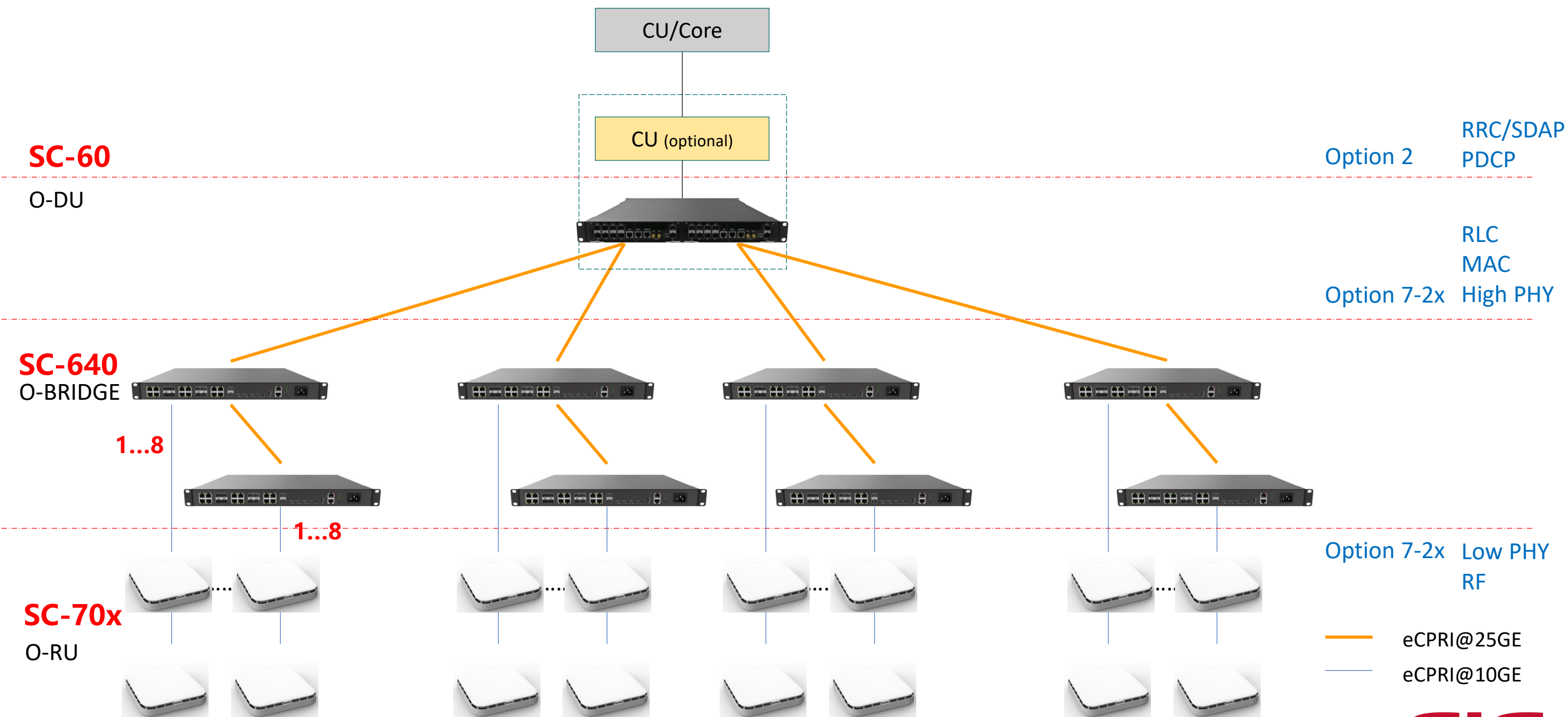




5G O-RAN Small Cell Platform

Networking Architecture



Networking Architecture

■ O-DU (SC-60)

- ▶ 4x25GbE per DU module; maxim 2 modules / chassis

■ O-Bridge (SC-640)

- ▶ 2x25GbE uplink to O-DU
- ▶ 8x10GbE RJ45/SFP+ combo port to O-RU
- ▶ 2x10GbE/2x25GbE SFP28 for O-RU or O-Bridge cascade

■ O-RU (SC-70x)

- ▶ Sub6G : 1x10GbE SFP+/RJ45 combo

Highlights of SC-60 O-DU



- 3GPP and O-RAN compliant
- 5G evolvable, LTE compatible
- Cost effective high performance 16-core NXP ARM Processor and FPGA
- 3rd party software integration
- Flexible capacity with configurable processing modules
- Flexible functions with optional CU accommodation and various low layer split
- Compact, easy for installation and maintenance

Hardware Features

- 5 x LX2160 CPUs + FPGA accelerator
- Dedicated control plane
 - ▶ BMC for chassis management and centralized firmware management
 - ▶ Dedicated board control for timing and RRU management (S-plane and M-plane)
- High accuracy base station timing
 - ▶ External SyncE+1588v2 input from any uplink ports
 - ▶ External GPS/ToD input
 - ▶ Optional Integrated GPS receiver
 - ▶ Integrated OCXO with high performance hold over option (+/-1.5us@8H)
- Very high bandwidth
 - ▶ 300Gbps memory / CPU
 - ▶ 80Gbps to FPGA / CPU

Radio Technology Capability

- 5G NR (LTE in future releases)
- Sub6G and mmWave (future releases)
- 3GPP Option 2 high layer split, CU optional
- O-RAN Option 7-2x low layer split, eCPRI support
- Up to 2 DU modules, each supporting:
 - ▶ Sub6G: 2 * 100MHz 4T4R (4 DL / 2 UL layers) or 4 * 100MHz 2T2R (2 DL / 2 UL layers)
- 1.8Gbps DL / 0.6Gbps UL peak data rate per 4T4R (4 DL / 2 UL layers) cell
- 256 active users per cell

O-DU Timing

■ Timing source

- ▶ External GPS + ToD Input
- ▶ Integrated GPS module (optional)
- ▶ IEEE 1588v2, from CU uplink ports, with optional SyncE (4x ports)
- ▶ IEEE 1588v2, from DU uplink ports, with optional SyncE (4x ports)

■ Timing Specification

	O-DU	O-RU + O-Bridge	Total
Frequency Error	± 15 ppb	± 35 ppb	± 50 ppb
Timing Error	± 130 ns	± 130 ns for each node	± 1 us
Holdover Time	OCXO 8 hours, +/- 1.5us (optional)	NA	8 hours, +/- 1.5us (optional)

SC-640 O-BRIDGE



- 8*10GE combo access ports
- Hybrid Fiber or PoE
- 2*25GE to DU
- O-RAN Compliant
- 2*25GE for cascade
- SyncE/1588 timing

SC-640 O-BRIDGE Features

- RRU Hub
 - ▶ 8x10GE RJ45/SFP+ Combo Ports
- DU Uplink Ports
 - ▶ 2x25GbE SFP28 for uplink to DU
- Cascade Port
 - ▶ 2x25GbE SFP28 for cascading
- eCPRI switching
 - ▶ Up to 8 sectors/16 layers, with flexible cell combining
- 1000W AC-DC Power Module
 - ▶ 800W PSE output, for PSE or Hybrid fiber
 - ▶ Each RRU port can support 100W 802.3bt PSE
- SyncE + IEEE 1588 TC
- N:1 FAN protection

SC-70x O-RU



- ▶ Compliance
 - 3GPP 5G NR
 - O-RAN fronthaul
- ▶ Performance
 - 4T4R
 - DPD
- ▶ Flexibility
 - RJ45 or SFP+
 - PoE or hybrid fiber

SC-70x Features

- ▶ Sub6G 5G NR radio
 - Band option: n78/n41/n79/n48
 - Carrier bandwidth: 20/30/40/50/60/80/100 MHz
- ▶ eCPRI, O-RAN Split option 7-2x
- ▶ 4T4R with integrated or external antennas
- ▶ 24 dBm transmit power per chain
- ▶ 1*10GbE fronthaul interface, RJ45 or SFP+ optional
- ▶ Power supply via 802.3bt PoE or hybrid fiber
- ▶ SyncE + IEEE 1588 v2 timing
- ▶ O-RAN compliant OAM, with NETCONF/YANG
- ▶ Ceiling, rail and wall mounting

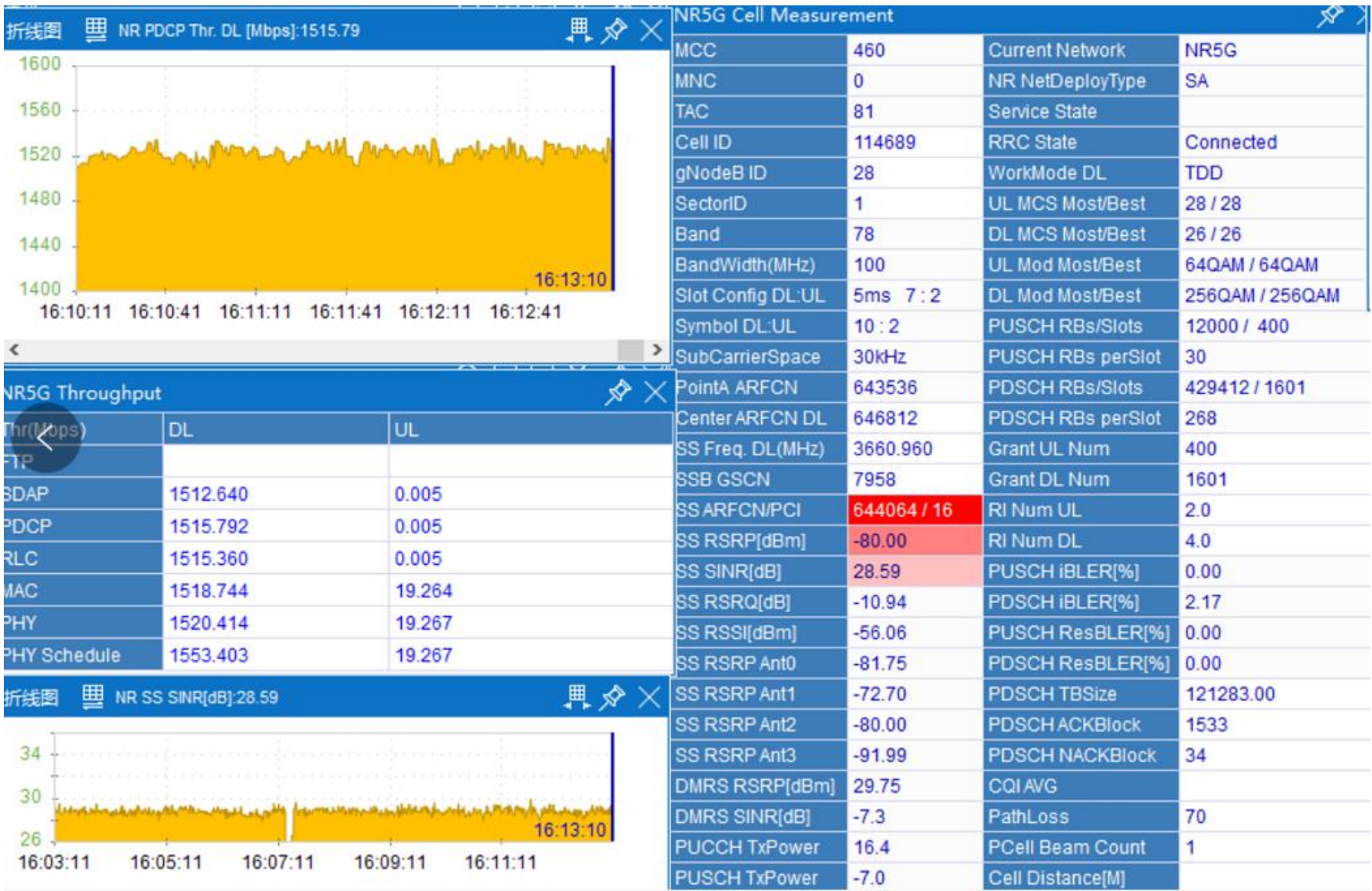
SC-70x Products

Name	Mode	Frequency (MHz)	Band	Antenna
SC-701	TDD 5G NR	3300~3600	N78	Integrated Omni
SC-701e	TDD 5G NR	3300~3600	N78	External Ant
SC-702	TDD 5G NR	2495~2690	N41	Integrated Omni
SC-702e	TDD 5G NR	2495~2690	N41	External Ant
SC-703	TDD 5G NR	3600~3800	N78	Integrated Omni
SC-703e	TDD 5G NR	3600~3800	N78	External Ant
SC-704	TDD 5G NR	4600~4900	N79	Integrated Omni
SC-704e	TDD 5G NR	4600~4900	N79	External Ant
SC-705	TDD 5G NR	3550~3700	N48	Integrated Omni
SC-705e	TDD 5G NR	3550~3700	N48	External Ant

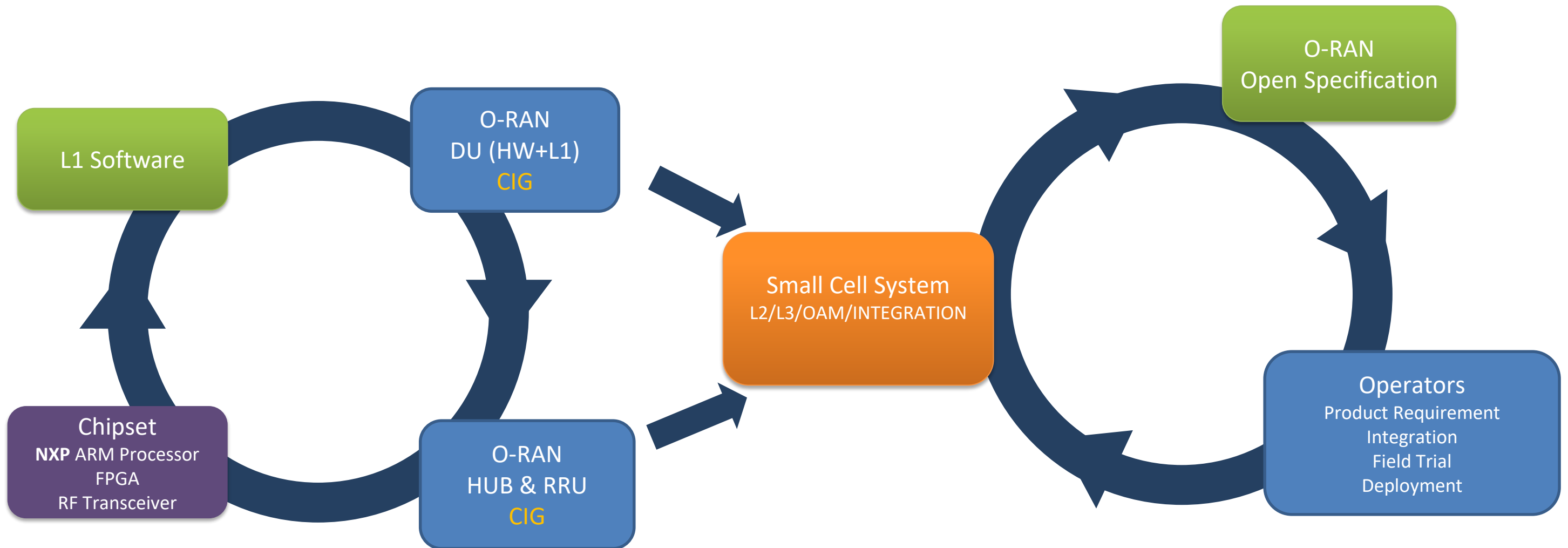
E2E Integration

► 3 protocol stack vendors

- DL/UL throughput
- Multi-cell
- Multi-UE



O-RAN Small Cell Eco System



Diversified Application Scenarios



Extensible



Expandable



Divisible



Evolvable



*Thank
you!*