Cell Site Gateway Router

Edgecore Open Compute Contribution

October 2018

Why "Open" Cell Site Gateways?

- Updates to existing equipment are needed as mobile backhaul usage surges with 5G deployments on the horizon. Sitting at the edge of the network the Cell Site Gateway is high volume deployment product and a natural location for Carriers to start enjoying the benefits of open networking.

    - Removal of single vendor lock in and traditionally slow technology roadmaps from incumbents

    - Truly open Hardware that can run different commercial and open source operating systems offering choice to the operator

    - New operating systems choices that provide extensibility and the execution of arbitrary agents

    - Removal of vendor lock in on pluggable optics and cables leading to lower capex

Cell Site Gateway High Level Requirements

- Outside plant compliant with operating temperature -40C to +65C
- 1RU 19" Rack mountable
- Maximum equipment depth 300mm
- Redundant power supplies and fans
- Circuitry to support clock synchronization techniques including IEE1588 and SyncE
- Support for local timing inputs/outputs GPS, TOD, 1PPM, etc.
- Ability to support long haul optical modules
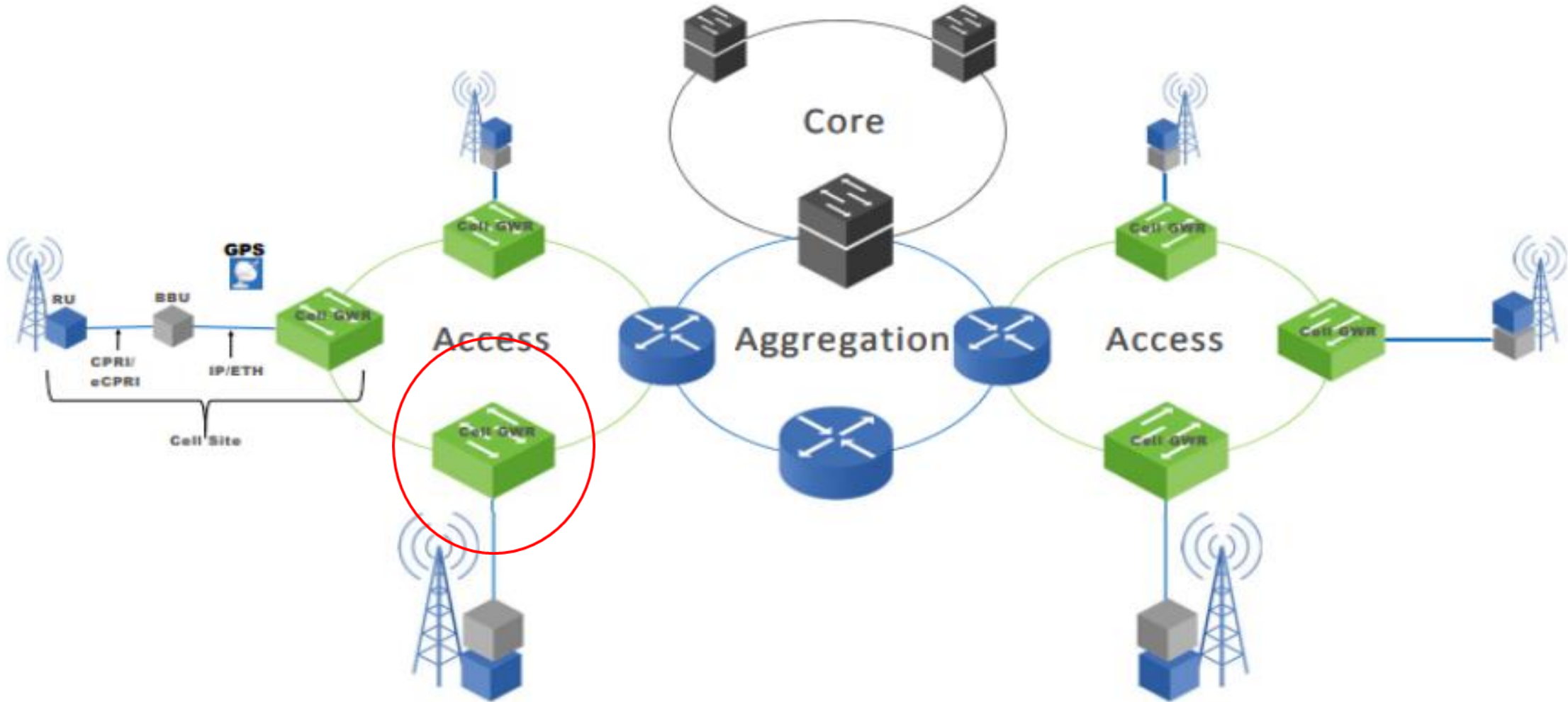
Source: AT&T OCP Presentation OCP_OutDoorSIAD.V4.pdf

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- Adheres to the AT&T SIAD Specification

- 16 x 10G SFP+, 8 x 25G QSFP28, 2 x 100G QSFP28

- Deep Buffer Switch Architecture

- Outdoor Plant Deployment

  - NEBS3, -40 to 65C operating temp

  - 1U, 300mm depth

  - 350W max power

- Full 1588 and Synchronous Ethernet

- AC and 48VDC Power Options

- Broadcom StrataDNX QumranAX silicon

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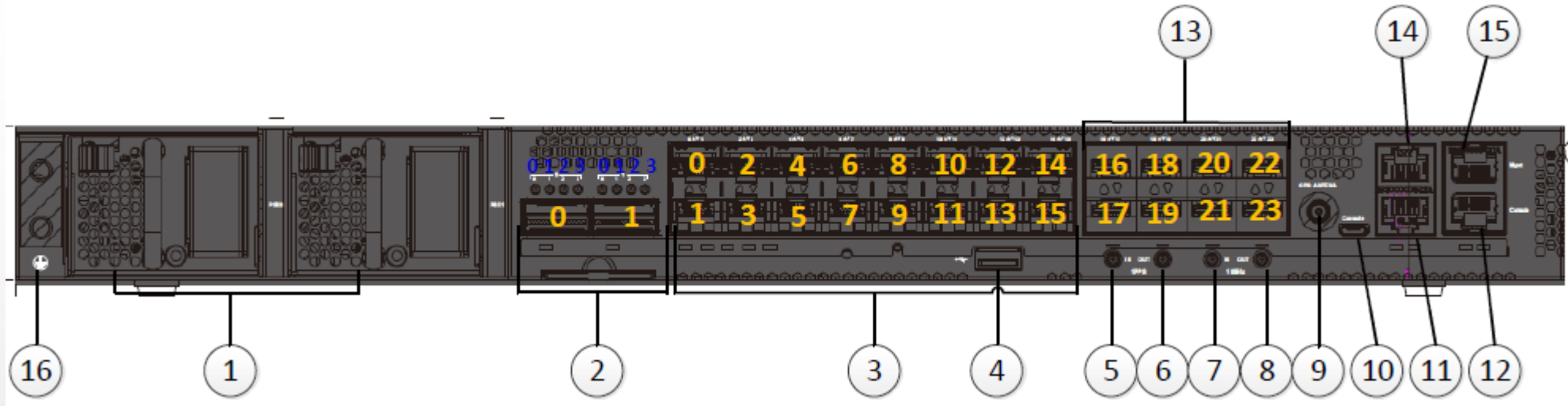
Description	
1- Power Supplies	9- GPS antenna port
2-100 Gigabit Ethernet QSFP28 ports	10-Micro USB console port
3-10 Gigabit Ethernet SFP+ ports	11-Time of day (**ToD**) RJ45 port
4-USB storage port	12-RJ45 console port
5-1PPS input port	13-25 Gigabit Ethernet SFP28 ports
6-1PPS output port	14- Building-Integrated Timing System port (**BITS**)
7-10MHz input port	15-Management Ethernet port (**MGMT**)
8-10MHz output port	16-Grounding mark

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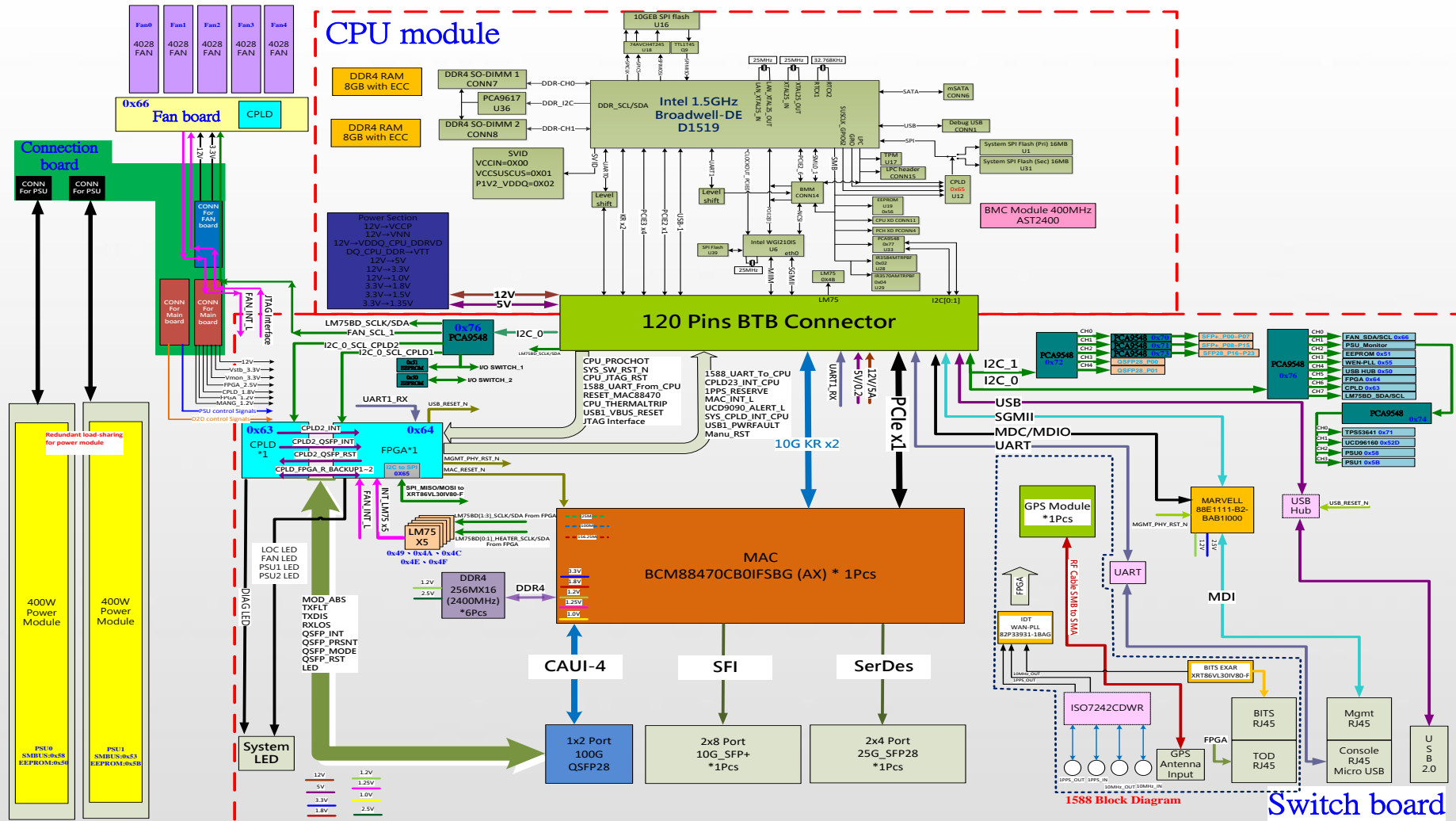
What Is Being Contributed ?

Hardware

- Design Specification
- Complete Design Package
  - Schematics
  - Allegro .brd Files
  - Gerber Files
  - Mechanical STEP Files
  - Mechanical Assembly Drawings
  - Complete Bill of Material
  - CPLD Code in Binary and Source format
  - Test Plan

Software Support

- ONIE
- Open Network Linux
- OCP Baseline Redfish
- Open Optical Monitoring (OOM)
- SONiC
- Trellis, Stratum (ONF)

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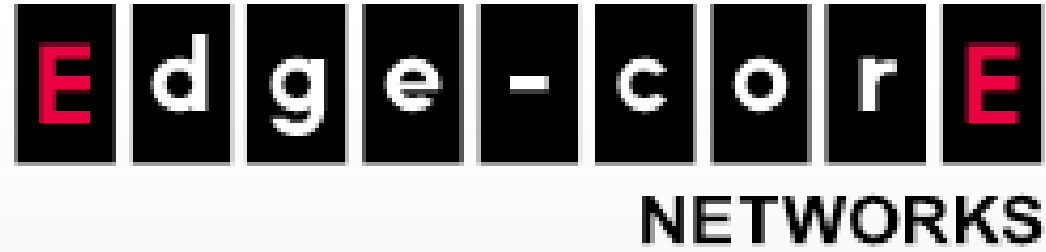
- Contribution Schedule
  - Specification contribution – Complete ready for review
  - Design file contribution – Complete ready for review
  - Incubation Committee overview and presentation – October 11th
  - Contribution Acceptance - Tentative completion by November 1st
- Product Schedule
  - Sample units distributed to software partners – Complete
  - PoC tests and filed trials – Throughout Q4 2018
  - Volume and GA Q4 2018

OCP Tenets

- Scale – The AS7316-26X allows for large scale deployments in Telco/Carrier environments. This is provided by the many choices of automated provisioning and management features and functions provided the various NOS options and in the ecosystem available for the products.

- Openness - The AS7316-26X is a completely open design with a complete hardware design package contributed to Open Compute. In addition to the open hardware these product will support numerous open source software options including SONiC and many NOS options available through ONF (Trellis, Stratum, etc.)

- Impact - The introduction of the first "Open" Cell Site Gateway will have a tremendous impact with Telco carriers as they are increasing cellular installations and heading towards their 5G rollout. Decreased Capex in combination with NOS options that offer open programmable interfaces will significantly decrease installation time and allow rapid service bring up.

Thank You