

Nokia Cloud RAN: AirScale RNC

Nokia HetRAN Controller Technical Management
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June, 2017

Agenda

- **Nokia Cloud RAN**
- AirScale RNC: product status and roadmap
- AirScale BSC: brief introduction
- Summary

Cloud RAN is part of AirScale Radio Access ... and AirScale RNC is part of Cloud RAN portfolio

GLOTEL
GLOBAL TELECOMS
AWARDS 2016

HIGHLY COMMENDED

*Advancing the
Road to 5G*

AirScale Base
Station



AirScale Cloud RAN



AirScale Active
Antennas



AirScale Wi-Fi



Common software



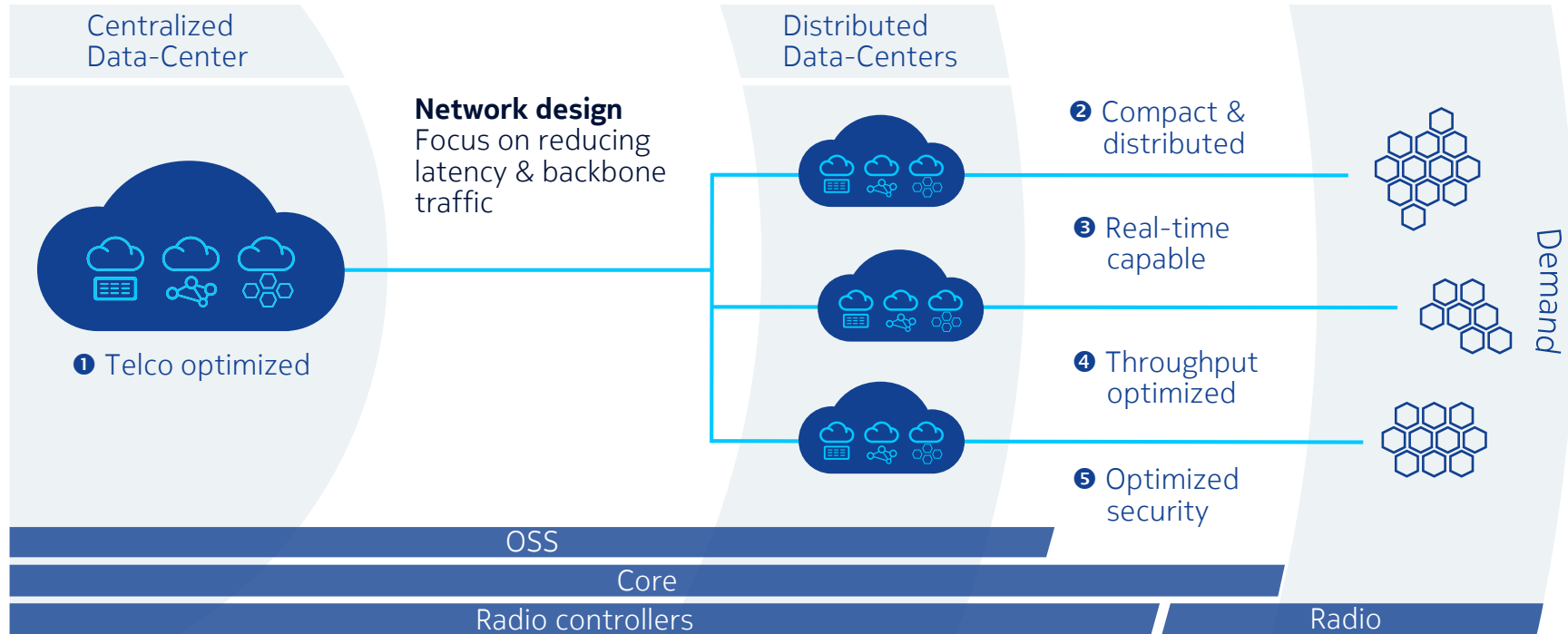
AirScale RNC
Cloud BTS
AirScale BSC

Note: All products on this slide are subject to ECC
clearance and approval

NOKIA

A Cloud architecture driven by Telco performance requirements

Layered approach combining centralized and distributed data-centers



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Some characteristics of Nokia Cloud RAN

Common reference
infrastructure:
Nokia AirFrame Data Center
Solution

Telco grade
reliability

Flexible deployment
models

Evolution
to 5G

Common management
solution:
Nokia NetAct &
Nokia CloudBand
Application Manager

Telco grade
performance

Enabling cloud functions
such as scaling

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Constant network controller innovation

Traditional controllers

- Voice centric
- Single purpose hardware
- Platform per technology
- Limited scalability
- Physically large

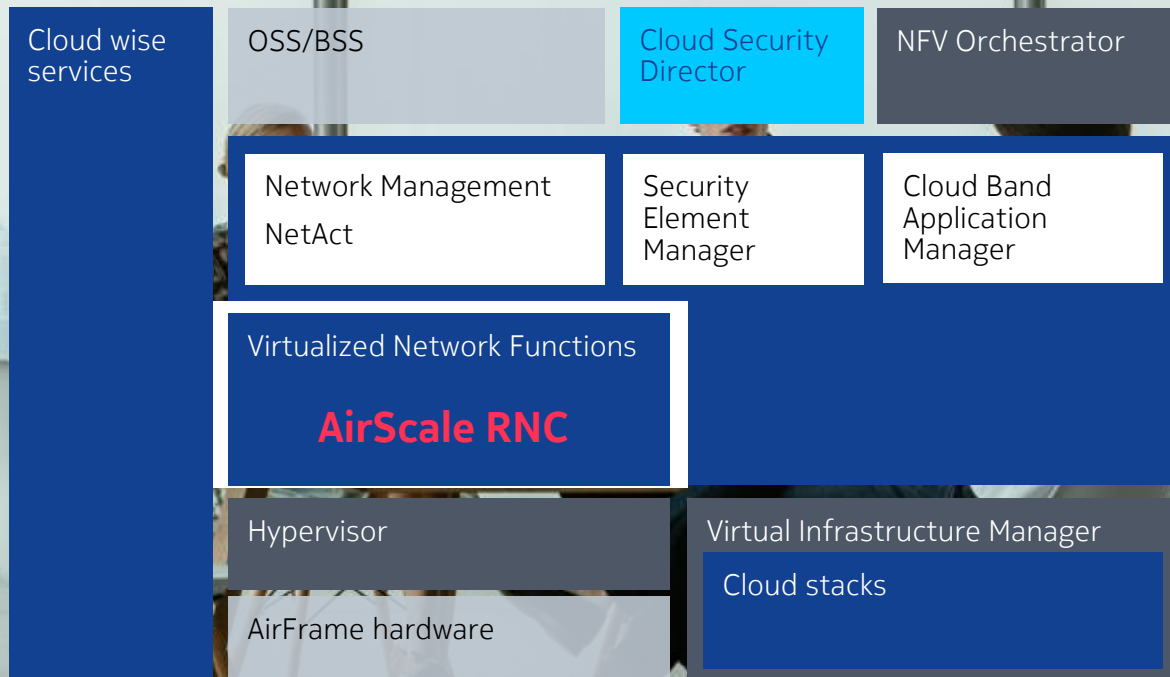


AirScale RNC

- Cloud based
- Multi-purpose cloud infra (HW+SW)
- Virtualized network function
- Dynamic scalability
- Physically part of datacenter or distributed

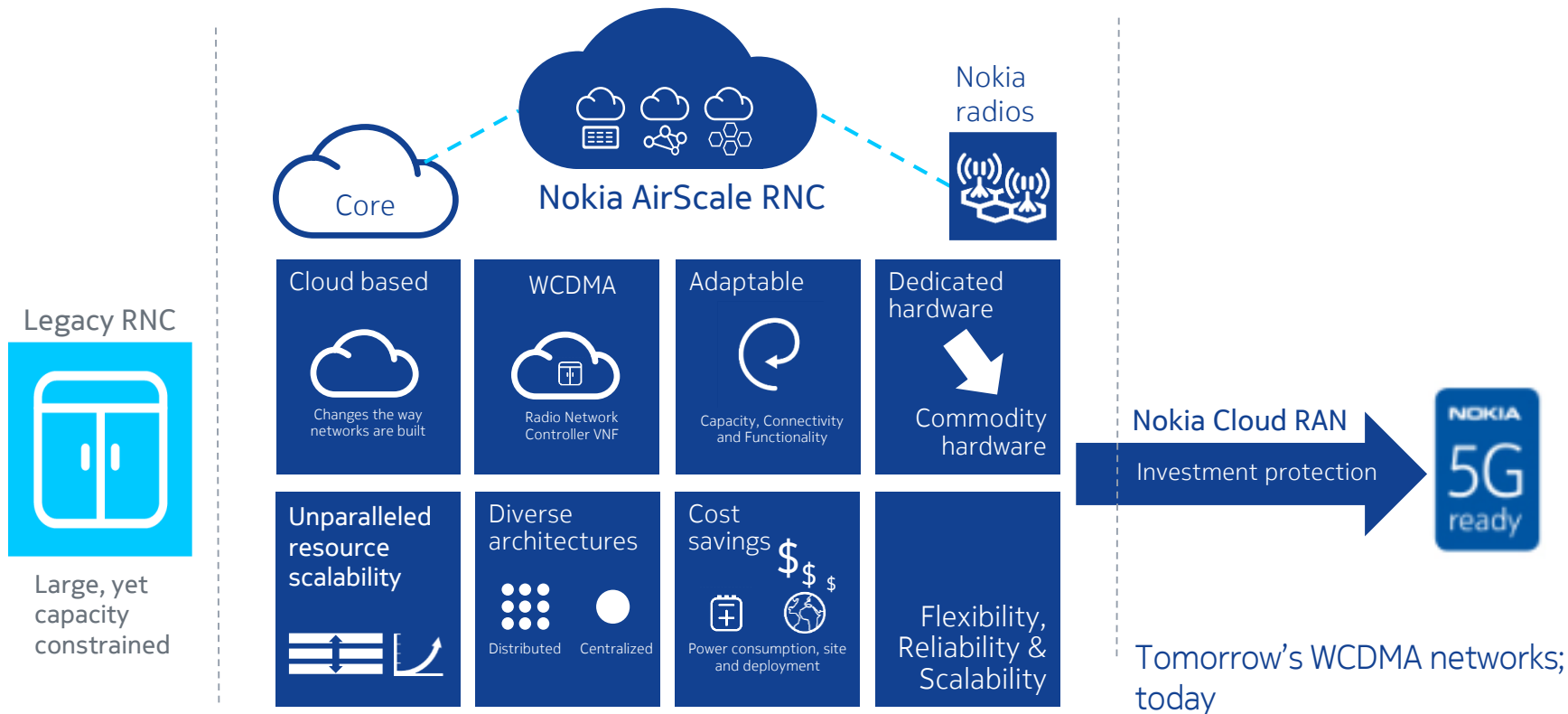


What is the AirScale RNC?

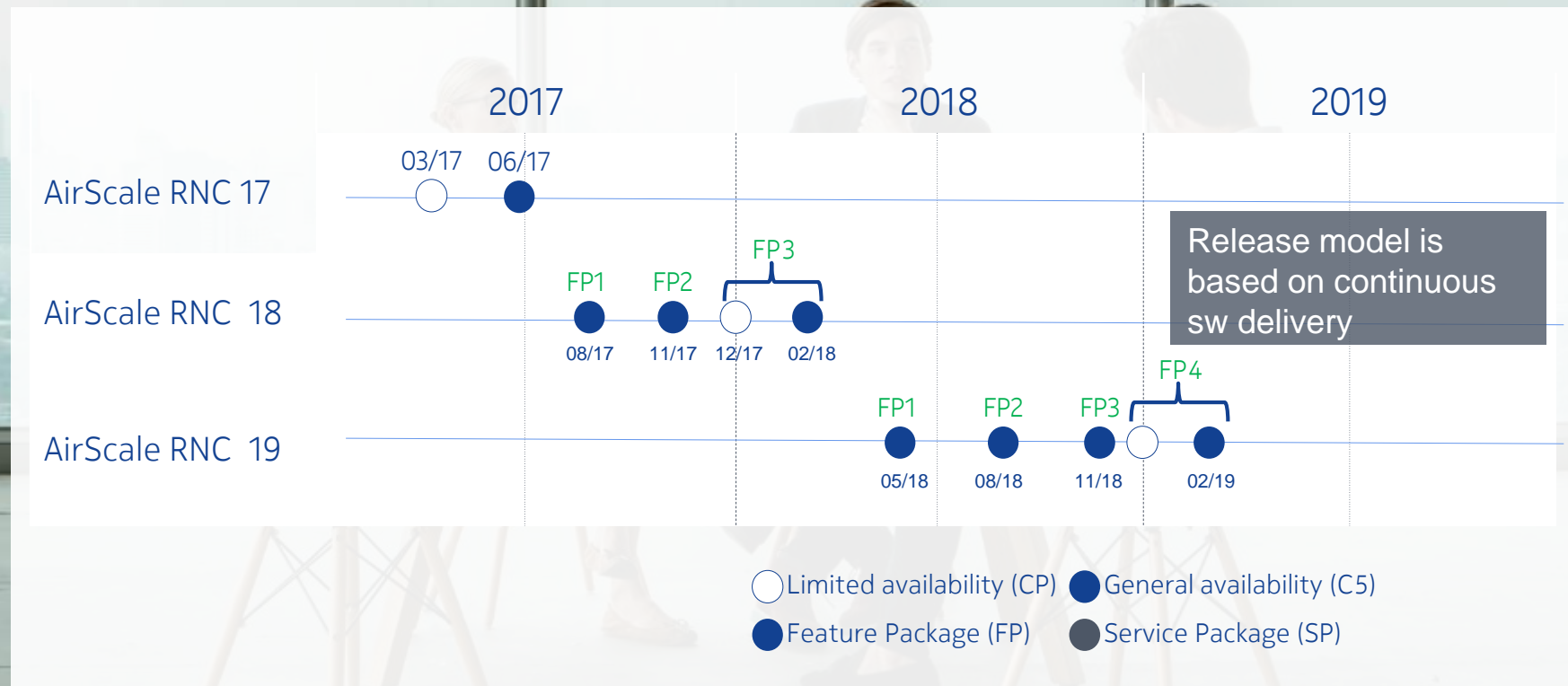


a vital element of Nokia Cloud RAN portfolio

Nokia AirScale RNC - a future-proof solution for WCDMA



AirScale RNC roadmap



AirScale RNC 17

features ready for contract - highlights

Cloud functionalities

- Resource scaling
- New Nokia VNF manager (CBAM)

RNC solution

- AirScale RNC full rack redundant configuration

Operational Excellence

- Operability solution with OMS, NetAct and CBAM support
- Cloud resource monitoring
- AirScale RNC Troubleshooting Baseline
- License management via CLS/SWEM

Transport & security

- AirScale RNC networking solution

Other release information

- WCDMA 17 base line for application features
- Software prerequisite: Hardware sourcing via Nokia mandatory

AirScale RNC 18*

features under study - highlights

Cloud functionalities

- Graceful scaling

RNC solution

- AirScale RNC Site solution for Network sharing
- OpenStack Mitaka support (NCIR 17)

Transport & security

- Dual Stack IPv4/IPv6 for AirScale RNC Iub interface
- Dual Stack IPv4/IPv6 for AirScale RNC Iu, Iur interface

Other release information

- WCDMA 18 base line for application features
- Continuous SW Delivery
- Software prerequisite: Hardware sourcing via Nokia mandatory

* Subject to ECC clearance and approval

This release and its listed features are still under study, no commitment can be made at this point on the availability and schedules.

AirScale RNC 19*

features under study - highlights

Cloud functionalities

- Geo-resiliency
- Peak Scaling

RNC solution

- New AirFrame HW:
 - Skylake based servers*
 - OCP HW architecture*

Operational Excellence

- Multitrack cloud instance
- Complete AirScale RNC Transport Plan by NetAct
- Enhanced backup&restore with BR Cloud
- Event triggered symptom data collection

Transport & security

- Dual Stack IPv4/IPv6 for AirScale RNC M-Plane interface

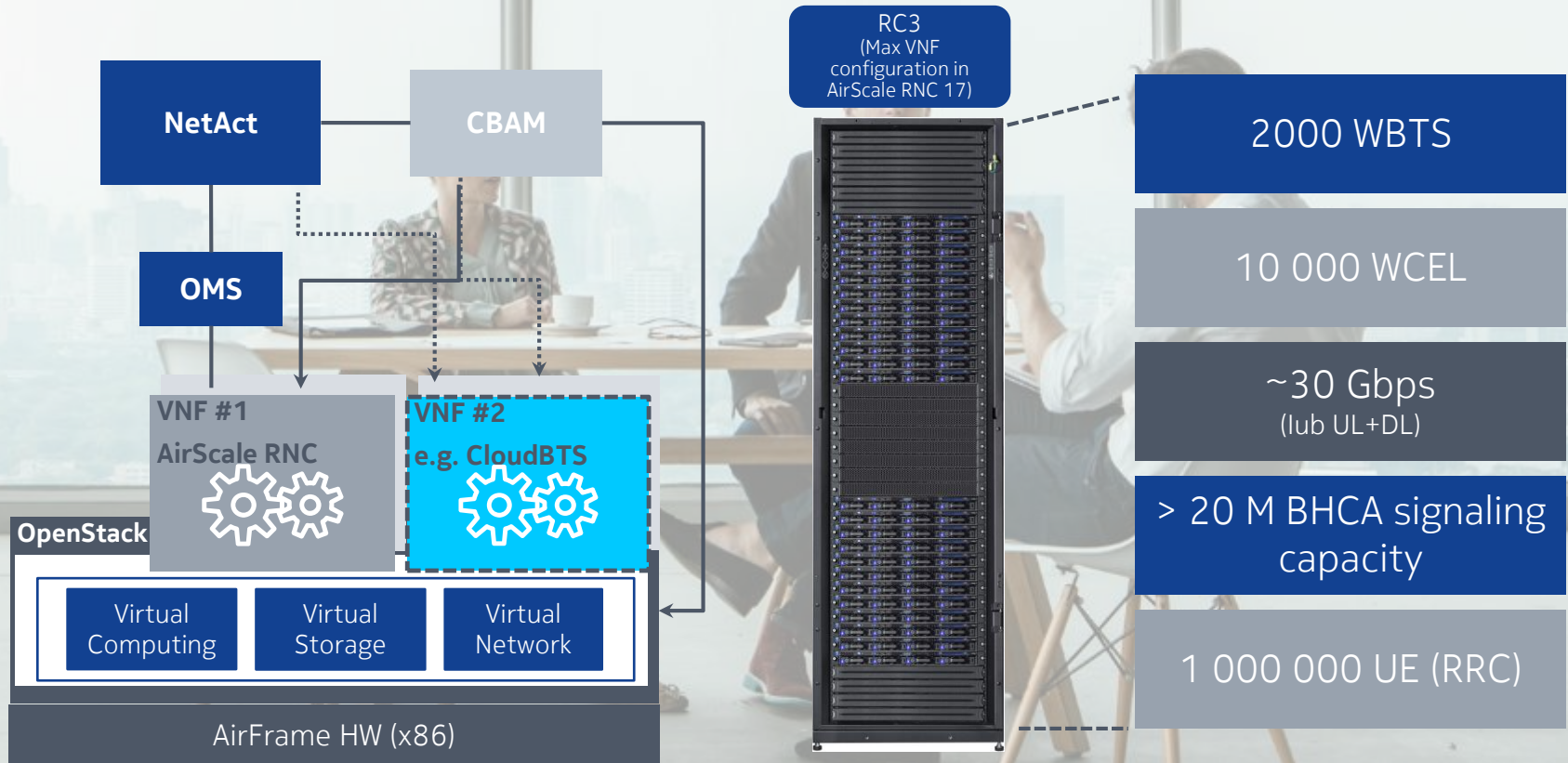
Other release information

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AirScale RNC 17 architecture overview and capacity summary



Financial benefits of AirScale RNC

CAPEX savings

future proof; hardware re-use

scalable solution

AirFrame data-center hardware

common support across radio, core & IT

OPEX savings

site consolidation & reduced energy costs

reduced effort & deployment time

simplified capacity management

enhanced software upgradeability

AirScale RNC 17 – program pilot status

AirScale RNC 17 CP milestone March 7th, 2017

Pilot ongoing with an operator in Europe

- **Scope:**
 - AirScale RNC 17 VNF sw
 - AirFrame NDCS RM 17 hw + NCIR 16 A SP1 sw
 - CBAM 17
 - NetAct 17.2
 - **Lab and commercial Live pilot**
 - 60 WCDMA BTSs in the live pilot cluster
- **Status on June 1st, 2017**
 - Lab tests completed
 - Live AirScale RNC VNF deployed and integrated
 - First 2 live BTSs re-hosted to AirScale RNC on May 19th
 - **KPIs on par with existing RNC type**
 - **Next steps:**
 - Re-host the full cluster of 60 live BTSs to live AirScale RNC
 - Live KPI verification during June
 - Pilot completion in Q2/2017

AirScale RNC 17 – MCI project status

MCI project target: to verify AirScale RNC with ~200 nodeBs.

- **Scope:**
 - Cloud based AirScale RNC 17
 - Cloud based NetAct 17.2
 - Cloud based OMS 17.2
 - VNF manager for cloud: CBAM 17
 - SRAN16.10 NodeB.
- **Status**
 - Product deployment and integration ongoing
 - First CS & PS calls on AirScale RNC made on 1st week of June
 - Acceptance tests ongoing
 - LE for test completion is end of June



Rollout of 15 x AirScale RNC to be started after acceptance test completion.

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GSM Network Controller Evolution

Flexi BSC

- Single purpose hardware
- A platform per technology
- Limited scalability
- Physically large



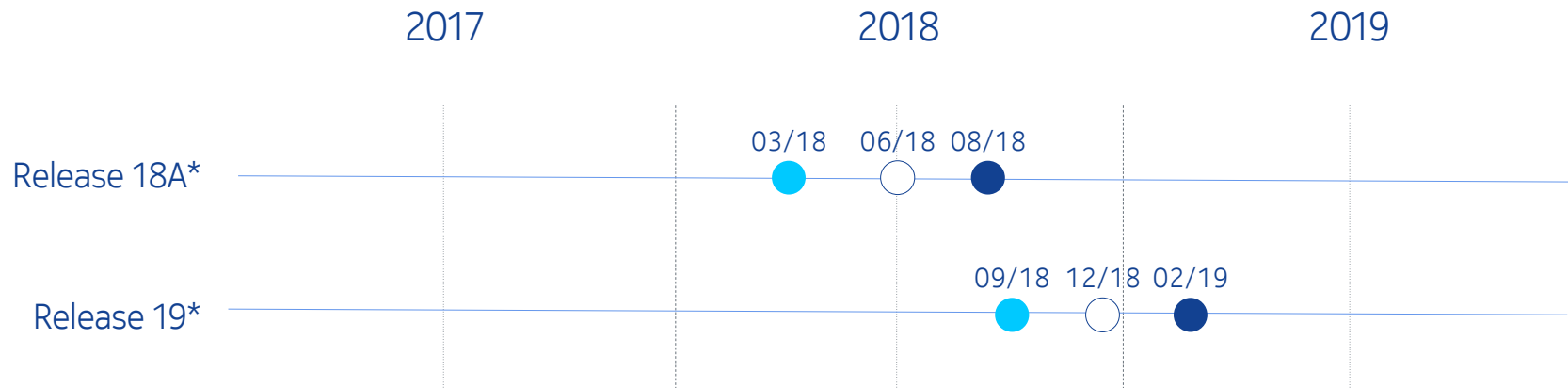
AirScale BSC

- Virtualised
- Common IT/Telco hardware
- Resources SW scalable
- Physically part of datacenter or distributed



VNF – AirScale BSC release plans

VNF releases



* Subject to ECC clearance and approval

- Ready for offering (C3)
- Limited availability (CP)
- General availability (C5)
- PoC n start/end
- Trial Package n (Trp)
- Service Package (SP)

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Cloud RAN is an important step towards 5G – and it brings major benefits already before 5G

Common cloud infra solution:

- Common operational processes
- Common spare parts

Flexibility in terms of capacity allocation

- Capacity can be allocated where needed the most

Future proof solution:

- HW investment is not for 2G or 3G only

... and these benefits increase with growing number of VNFs introduced.

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