

# JOURNEY TO THE INFINITE NETWORK

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**May 2017**

Proprietary & confidential

**B·YOND**

# B—YOND WAY



## **INNOVATE** AHEAD OF THE CURVE

- ▶ IP creation
- ▶ Outcome based solutions design



## **INVEST** IN LABS

- ▶ Feasibility testing & POC's
- ▶ Network unbundling, AI, IoT, LTE, 5G



## **COLLABORATE** TO SUCCEED

- ▶ Ecosystem of partnerships with other disruptors
- ▶ Open platforms
- ▶ Code contribution



## **LEVERAGE** EXPERIENCE

- ▶ Reference architecture & design
- ▶ Methodology, automation, & tools
- ▶ Deep network knowledge

# And with new technologies like:



**AUGMENTED  
REALITY**



**VIRTUAL  
REALITY**



**AUTONOMOUS  
CARS**

**Networks must become**

**SMARTER**

**MORE FLEXIBLE**

**MORE RESILIENT**

**HIGHER PERFORMING**

**SECURE**

**to keep up.**

# BUT THE MODELS WE HAVE USED TO SCALE IN THE PAST

~~more  
**SPECTRUM**~~

~~more  
**TOWERS & SITES**~~

~~more  
**ROUTERS & SERVERS**~~

cannot deliver at the scale we need.

COMPANIES  
must turn to  
**innovative**  
**SOLUTIONS**



OR RISK BEING LEFT BEHIND.



Those who invest in the

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**SOFTWARE DRIVEN MACHINE-LEARNING**  
FUTURE OF INTELLIGENT NETWORKS

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will have the ability  
to change the way

**CONNECTIVITY**

is designed  
and built.

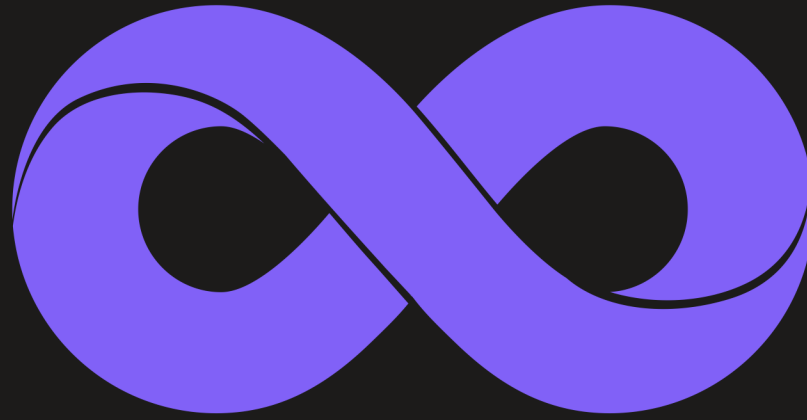
We need to adopt a new approach,

## A COMMUNITY-DRIVEN MODEL

that unbundles old components  
and is instead built on a foundation  
of software and analytics.



THIS IS **REVOLUTION**. THIS IS THE **INFINITE NETWORK**.



# THE INFINITE NETWORK

A network that has the ability to scale almost infinitely

A network that can be made available anywhere anytime

A network that's flexible enough to launch new services instantaneously



# COLLABORATIVE INNOVATION

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Through Open Source contributions,  
Co-innovation with partners and  
customers, and Knowledge sharing

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We accelerate the realization of the  
transformative technologies to create  
new markets and value

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**B·YOND ROADMAP**  
ON THE JOURNEY TO  
**THE INFINITE NETWORK**

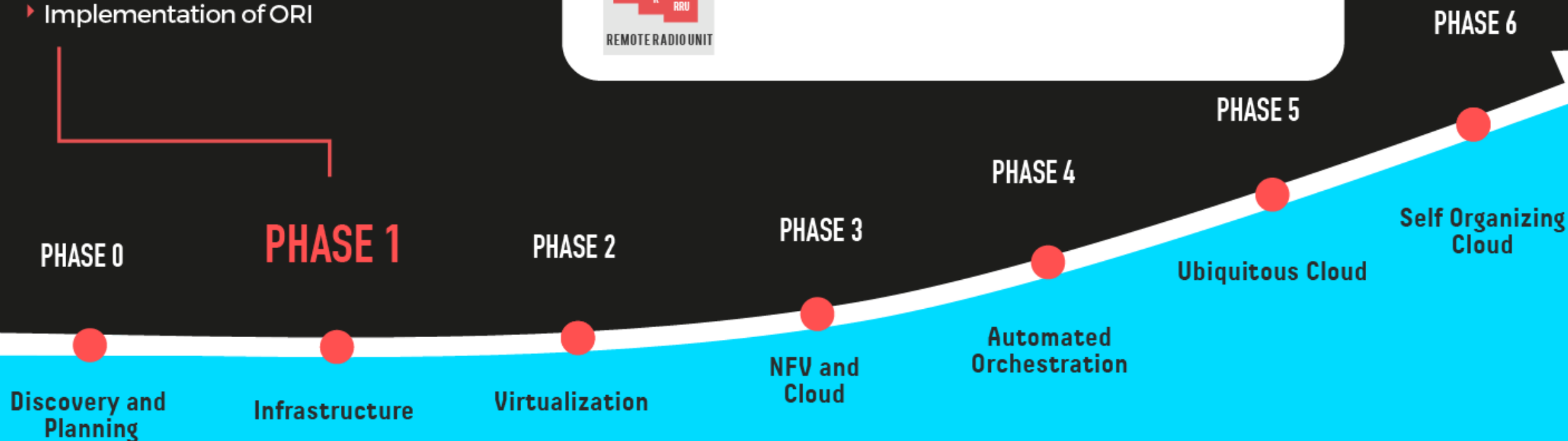
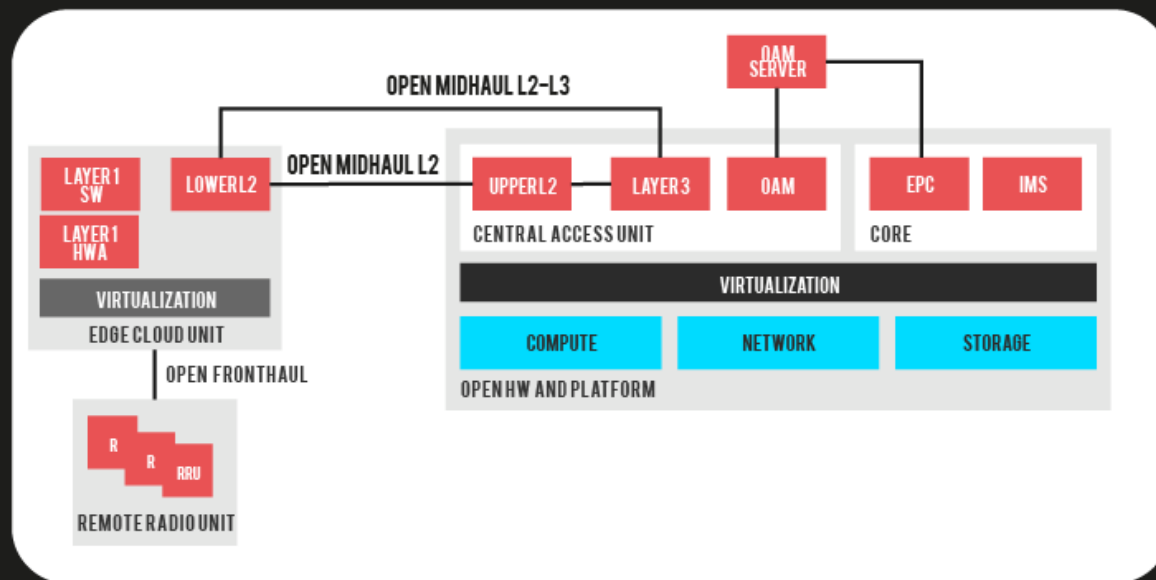
# JOURNEY TO THE INFINITE NETWORK

## OPENSOURCEHW/SW | UNBUNDLED RAN

We are a Founding member of TIP leading the charge in network unbundling through partnerships, collaboration, and innovation.

### Project highlights:

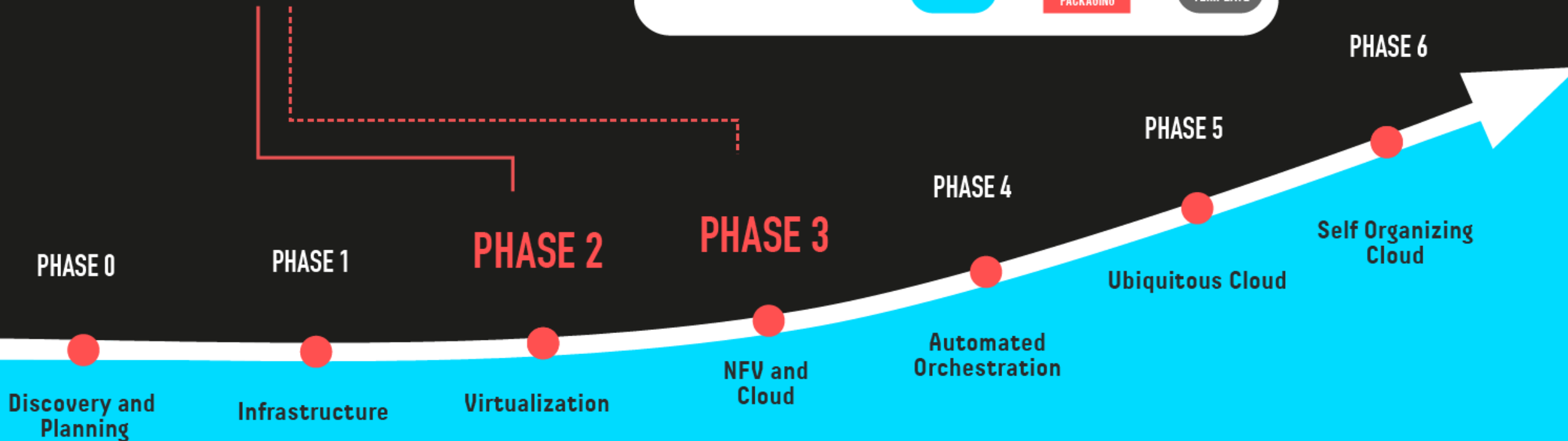
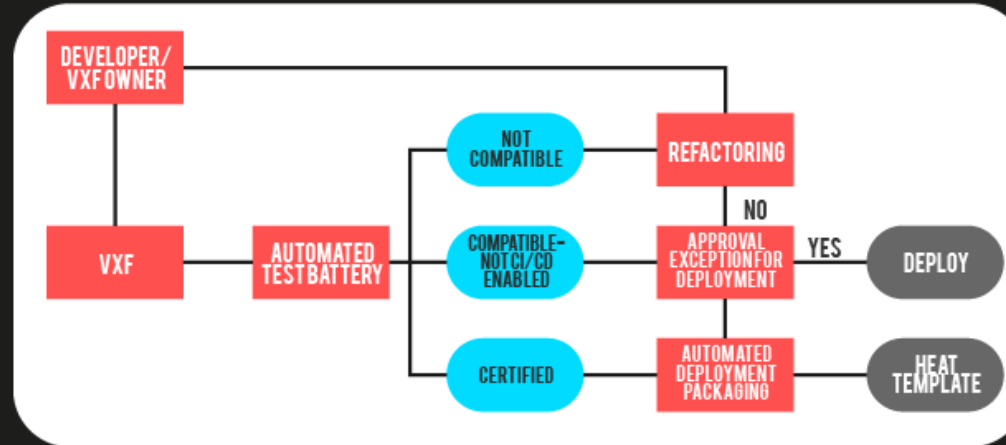
- ▶ Open Source Hardware
- ▶ Centralized Layer 2, 3 on x86 HW
- ▶ Distributed L1, L2 on x86 HW
- ▶ Implementation of ORI



# JOURNEY TO THE INFINITE NETWORK

## CI/CD QUALIFICATION & ENABLEMENT

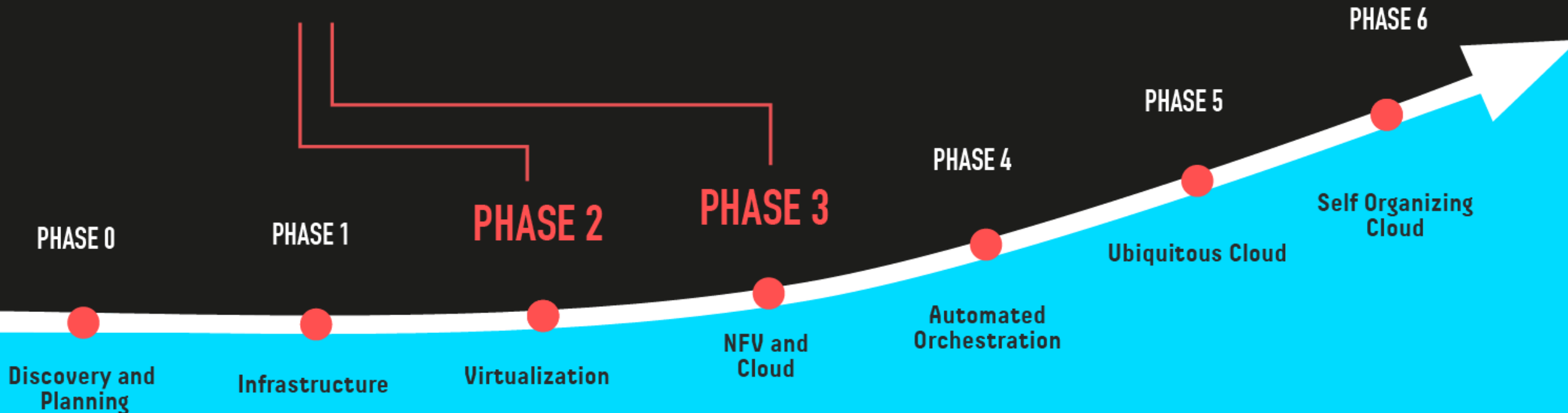
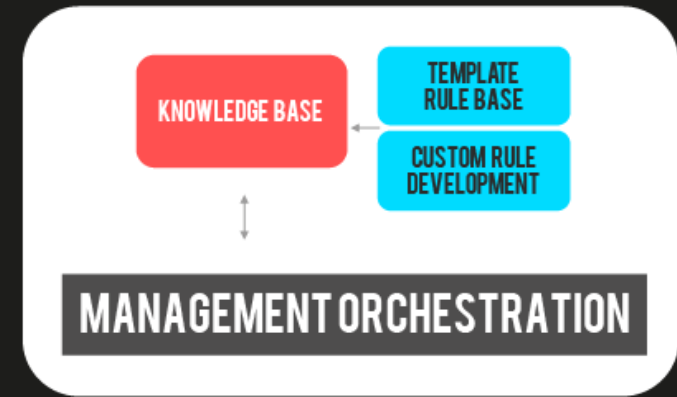
- ▶ VxF Testing & Certification
- ▶ DevOps Tool Chain Integration
- ▶ Automated Test Framework
- ▶ Automated Deployment Framework



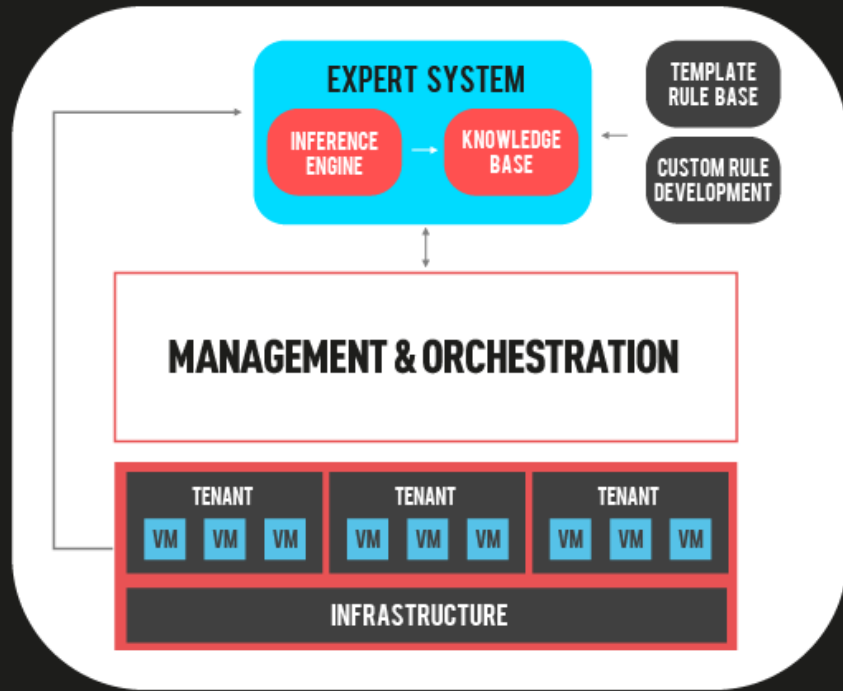
# JOURNEY TO THE INFINITE NETWORK

## KNOWLEDGE BASE DRIVEN ORCHESTRATION AND POLICY MANAGEMENT

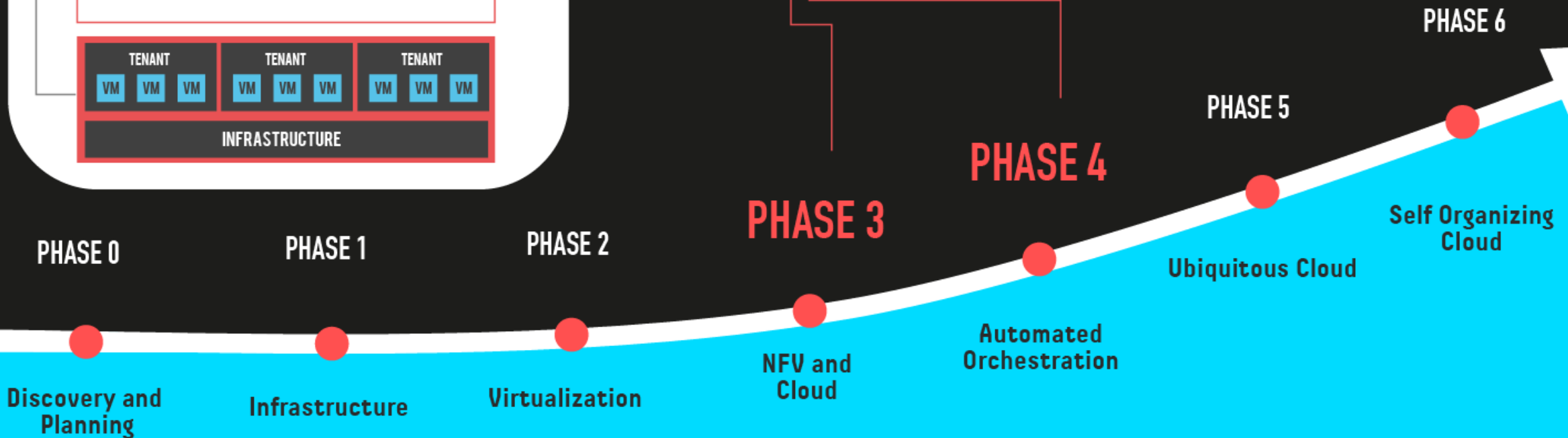
- ▶ Business process optimization through automation
- ▶ Rules driven Configuration automation, e.g.
  - IP Space
  - Route Assignment
  - Security Templates
  - Heat Configuration
- ▶ Knowledge base powered policy management
- ▶ End to end deployment automation through DevOps enablement and knowledge-based business process & Policy management.



# JOURNEY TO THE INFINITE NETWORK



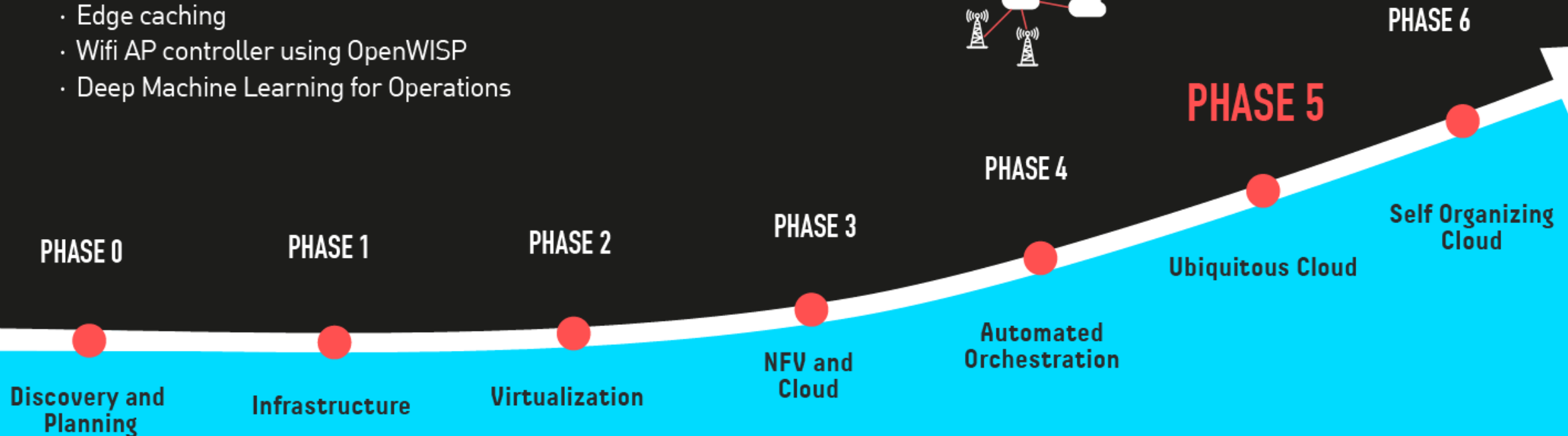
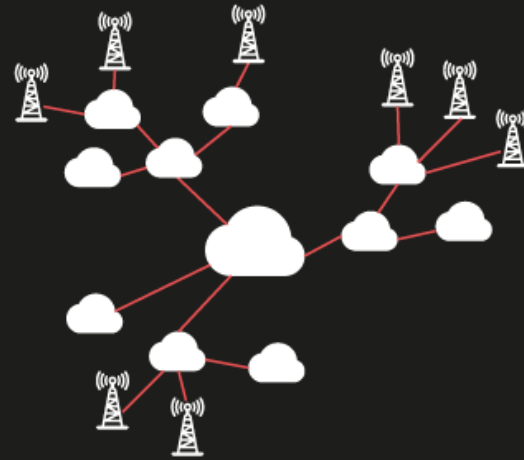
## EXPERT SYSTEM BASED ORCHESTRATION



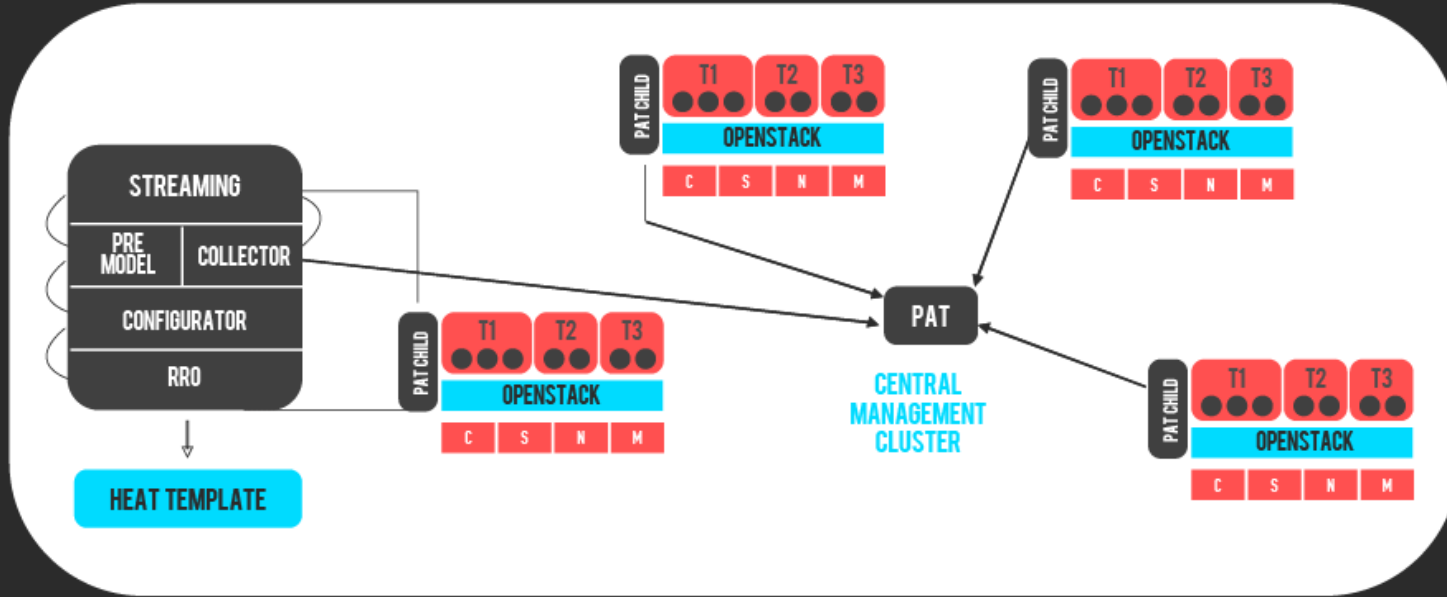
# JOURNEY TO THE INFINITE NETWORK

## EDGE CLOUD

- ▶ Remote discovery and provisioning of edge clouds in scale
- ▶ Centralized/federated management of edge clouds in scale
- ▶ Automated orchestration of VNFs
- ▶ Sample applications:
  - Network in a Box (Core + RAN)
  - Edge caching
  - Wifi AP controller using OpenWISP
  - Deep Machine Learning for Operations

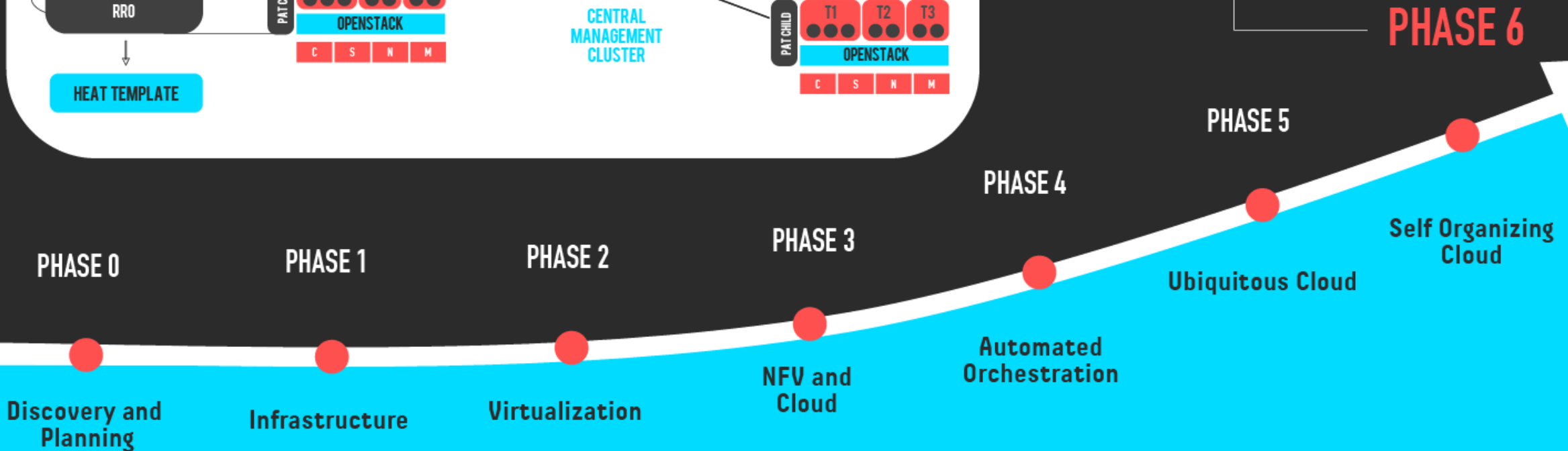


# JOURNEY TO THE INFINITE NETWORK



## AI CHAINING FOR SELF ORGANIZING CLOUD

- ▶ Multi-Algorithm modeling
- ▶ Parent-Child edge-optimized architecture
- ▶ Closed-loop resource redistribution





# End-to-end Process

INFRASTRUCTURE ROLLOUT

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LAB TESTING AND VERIFICATION

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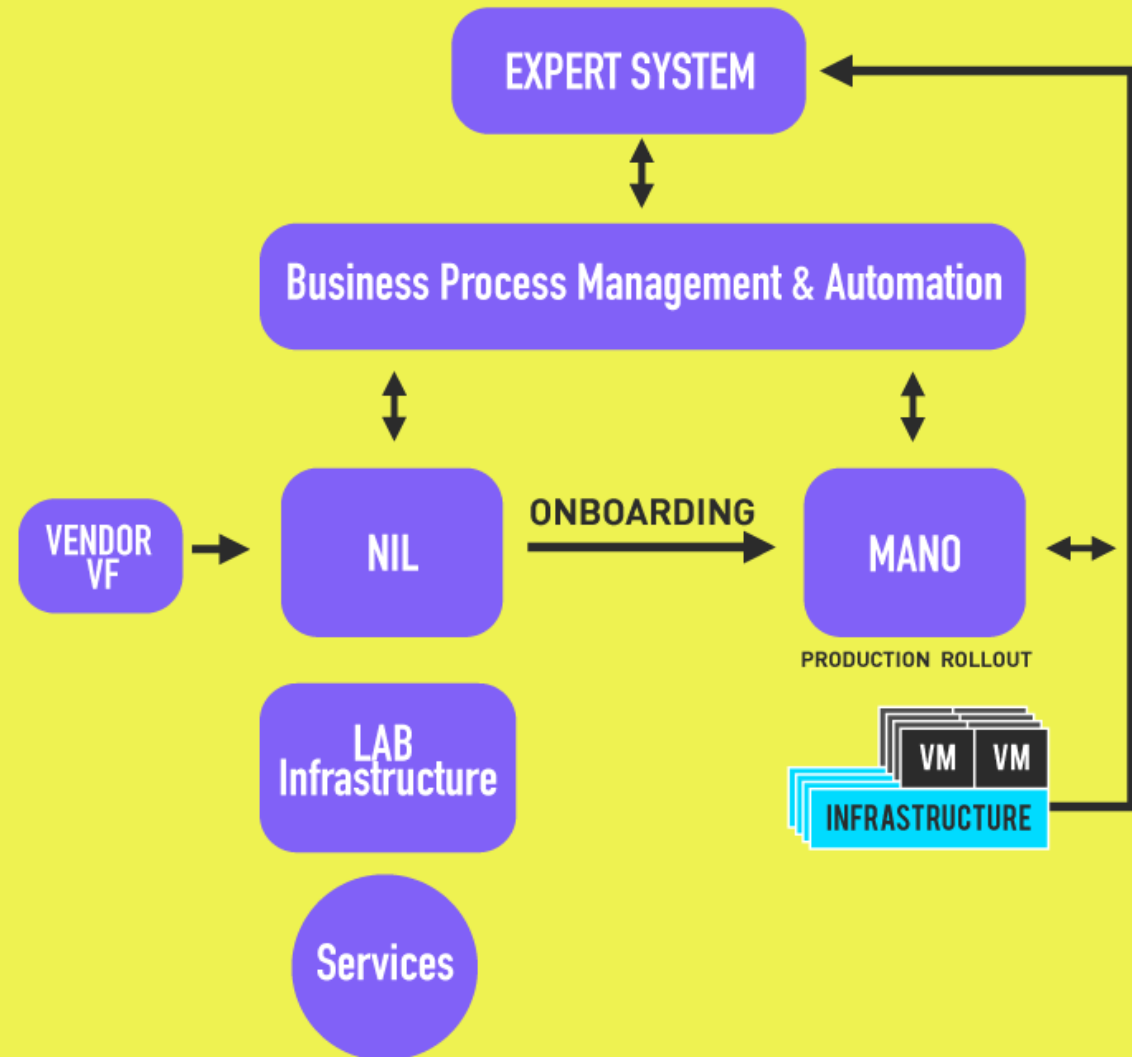
INSTALLATION AND DEVELOPMENT IN  
PRODUCTION ENVIRONMENT

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VNF TESTING AND VALIDATION

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VNF DEPLOYMENT AND MANAGEMENT IN  
PRODUCTION



# B·YOND CONTRIBUTION

**1** Leading cross industry adoption and integration of cutting edge technologies

**2** Leveraging open innovation at all levels

**3** Executing on our automation vision that combines workflow and process automation

**4** Innovating AI solutions that address the biggest upcoming challenges

Better, safer, augmented digital lives need **The Infinite Network** and **B.yond** is delivering on the promise to make it a reality

# THANK YOU!



**Rolf LUMPE**

Head of Business Development, APAC

**M** +81 (0)80 3446 0725

**E** [rolf.lumpe@b-yond.com](mailto:rolf.lumpe@b-yond.com)

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