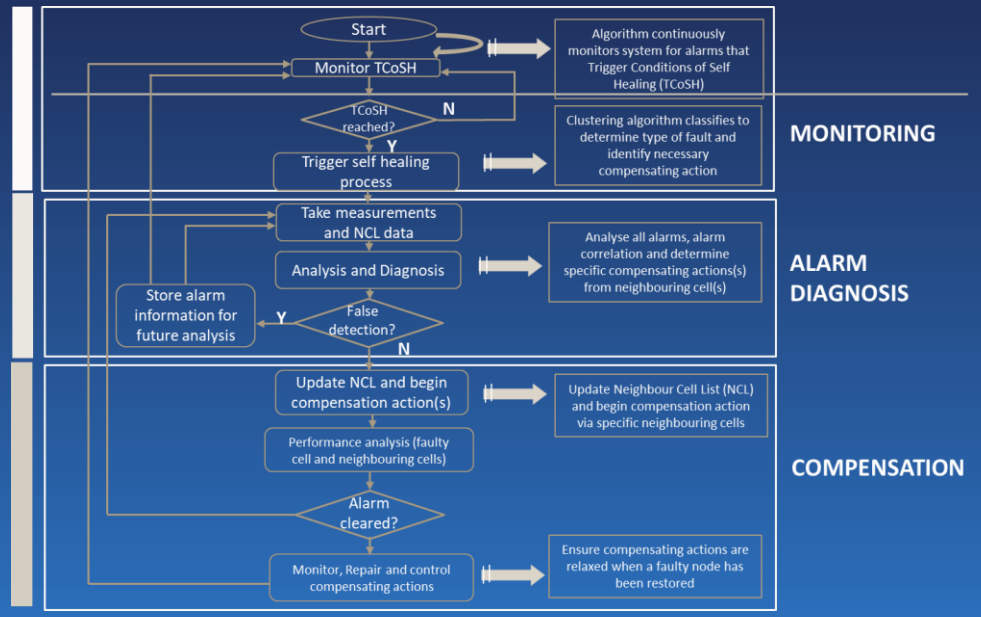


3GPP SON Series:

SON in 3GPP Release-10

Self-healing

@3g4gUK

Three stages of SON

Self-Configuration

- Plug and Play (PnP)
- Faster Rollout
- Consistency
- Licensees, Hardware Inventory and Software build
- Efficient resource utilization

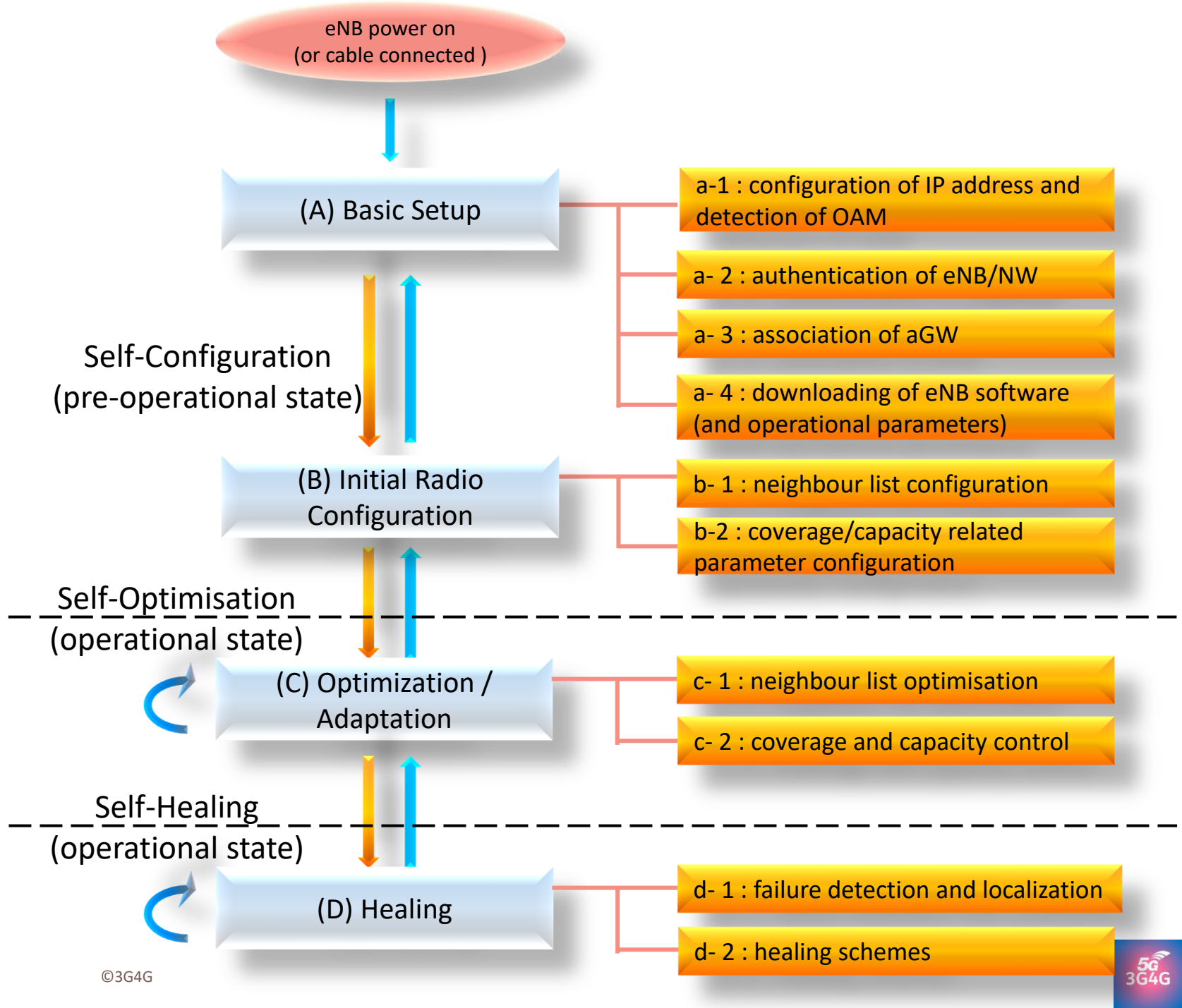
Self-Optimization

- Mobility Robustness Optimization (MRO)
- Mobility Load Balancing (MLB)
- Minimization of Drive Testing (MDT)
- Fast and proactive parameter optimization
- Increased Network performance

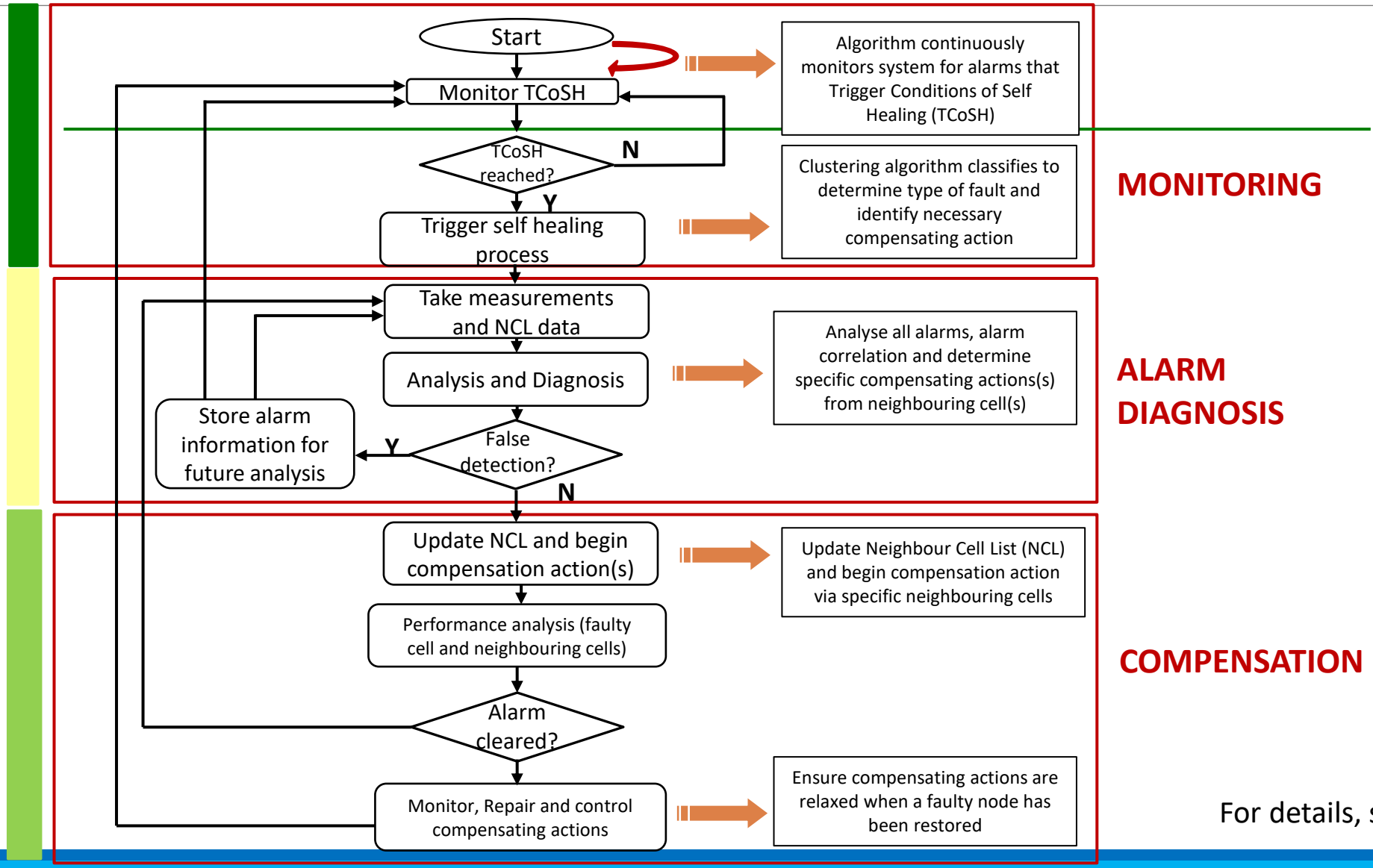
Self-Healing

- Fast, autonomous failure mitigation
- Continuous performance monitoring
- Faster Network maintenance
- More efficient resource utilization, less effort

Self-configuration / Self-optimization / Self-healing support and inter-operability



Example flowchart of Self-Healing process



For details, see 3GPP TS 32.541

Self-Healing Use Cases

- HW capacity expansion/replacement
- SW upgrade:
  - Automatic SW download to the nodes
  - Automatic NEM (Network Element Manager) upgrade
- Network monitoring:
  - Cell/service outage detection
  - Automatic PM (Performance Management) data consolidation
  - Information correlation for fault management
- Failure recovery:
  - Cell outage compensation
  - Compensation for outage of higher level NEs
  - Fast recovery of unstable NEM systems
  - Mitigation of unit outage

Source: Ericsson SON Workshop, 2012

SON Features in Release-10

- Release-10 has been focused mainly on self-healing functions.

- The following features have been defined in Rel-10
  - Coverage and Capacity Optimization (CCO)
  - Minimization of Drive Testing (MDT)
  - Cell outage detection and compensation
  - Energy savings
  - enhanced ICIC (eICIC)

- We will look at each of the above feature individually

SON Features in Release-11

- Release-11 has been focused mainly on Heterogeneous Networks (HetNets).

- The following features have been defined in Rel-11
  - UTRAN SON Management
  - Inter-RAT Energy saving management
  - Automated network management
  - Troubleshooting
  - Multi-layer, Multi-RAT HetNets

- We won’t be covering these as part of this SON Series

References and Further Reading

- From 4G to 5G: Self-organized Network Management meets Machine Learning by Jessica Moysen and Lorenza Giupponi (link)
- Self-Organizing Networks (SON) in 3GPP Long Term Evolution by Sujuan Feng and Eiko Seidel, Nomor Research (link)
- Self Organizing Networks for 3GPP LTE by Aderemi A. Atayero, Oluwadamilola I. Adu, and Adeyemi A. Alatishe (link)
- 3G4G: Self-Organizing Networks / Self-Optimizing Networks (link)
- The 3G4G Blog: SON (link)

Thank You

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