Interworking of oneM2M service layer to underlying 3GPP 4G/5G Networks

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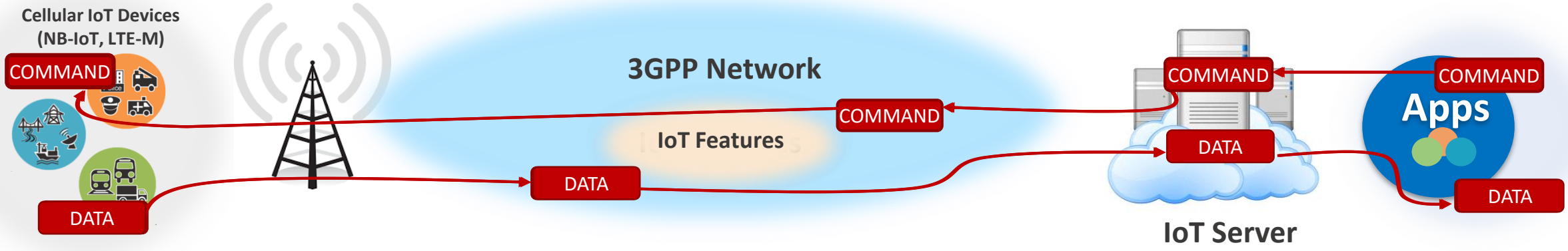
Background

- Increasing numbers of cellular IoT devices are starting to hit the market
  - E.g.- NB-IoT, LTE-M and higher category devices supporting functions such as video surveillance

- 3GPP has been adding IoT features starting in Rel-10 (2011) → Rel-15 (2018)
  - Features to avoid network congestion from massive numbers of IoT devices
  - Features to maximize network resource utilization/efficiency to minimize deployment costs
  - Features to keep network secure from the increased threats from IoT devices
  - Features to maximize IoT device battery life

- Operators have started deploying support for these features in their networks

A Typical Cellular IoT Deployment

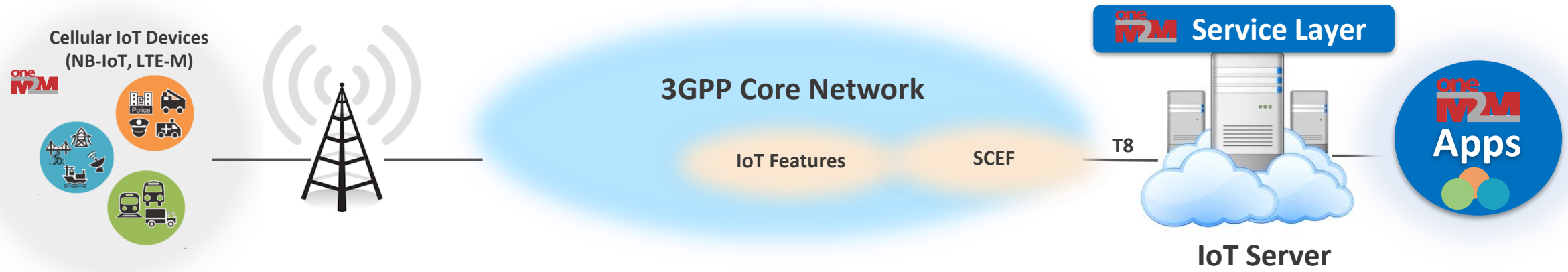


- Use of 3GPP IoT features requires low-level knowledge of 3GPP and a business relationship with operator

  (E.g. Configuration of IoT device sleep times requires intimate knowledge of 3GPP PSM and eDRX)

  → This presents a high barrier of use and adoption by typical IoT device manufacturers and app developers
- If devices and apps do not properly use these features, cellular IoT deployments are destined to fail
  - Inefficient use of network resources → higher costs and less scalability for operators
  - Shortened battery life of devices → inability to deploy cellular IoT devices in many IoT use cases
  - Security threats to the network → network, devices and application security will be compromised

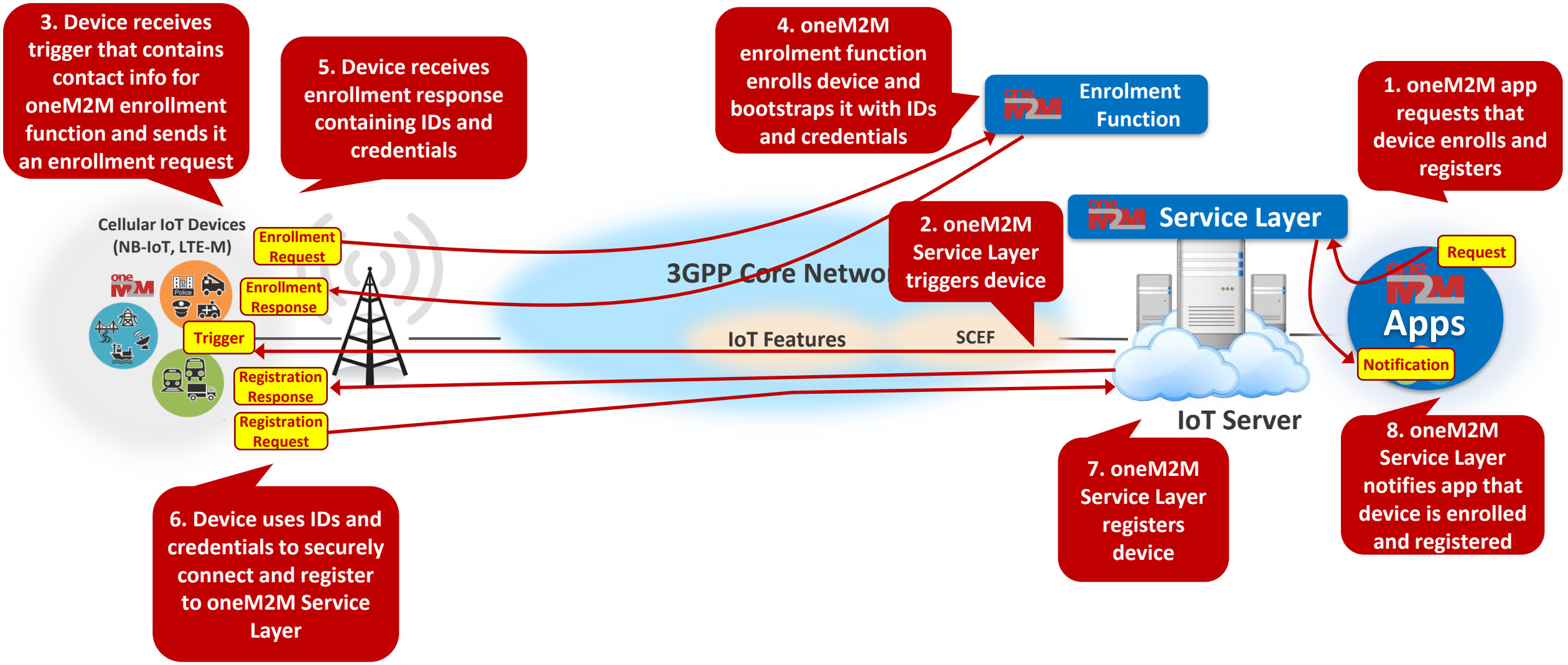
A oneM2M Cellular IoT Deployment



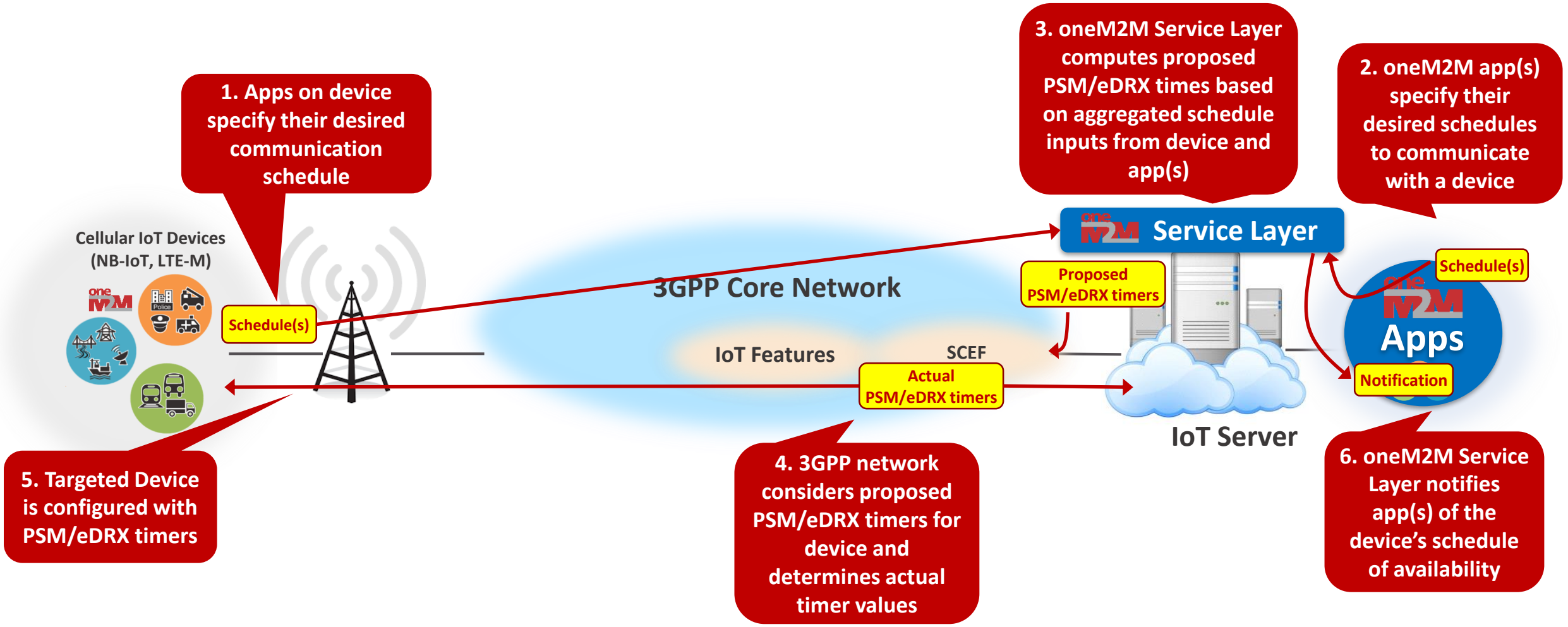
- oneM2M Rel-3 is the first IoT service layer standard to interwork with 3GPP IoT features
- oneM2M provides a complimentary set of value-add services that interwork with 3GPP IoT features
- oneM2M eases the use and adoption of 3GPP IoT features by IoT devices and apps
- oneM2M can be deployed internal or external to an operator's network
  - Enables an operator to move up the value-chain and offer additional value-add IoT services

Some Examples of oneM2M Cellular IoT Value-add Services

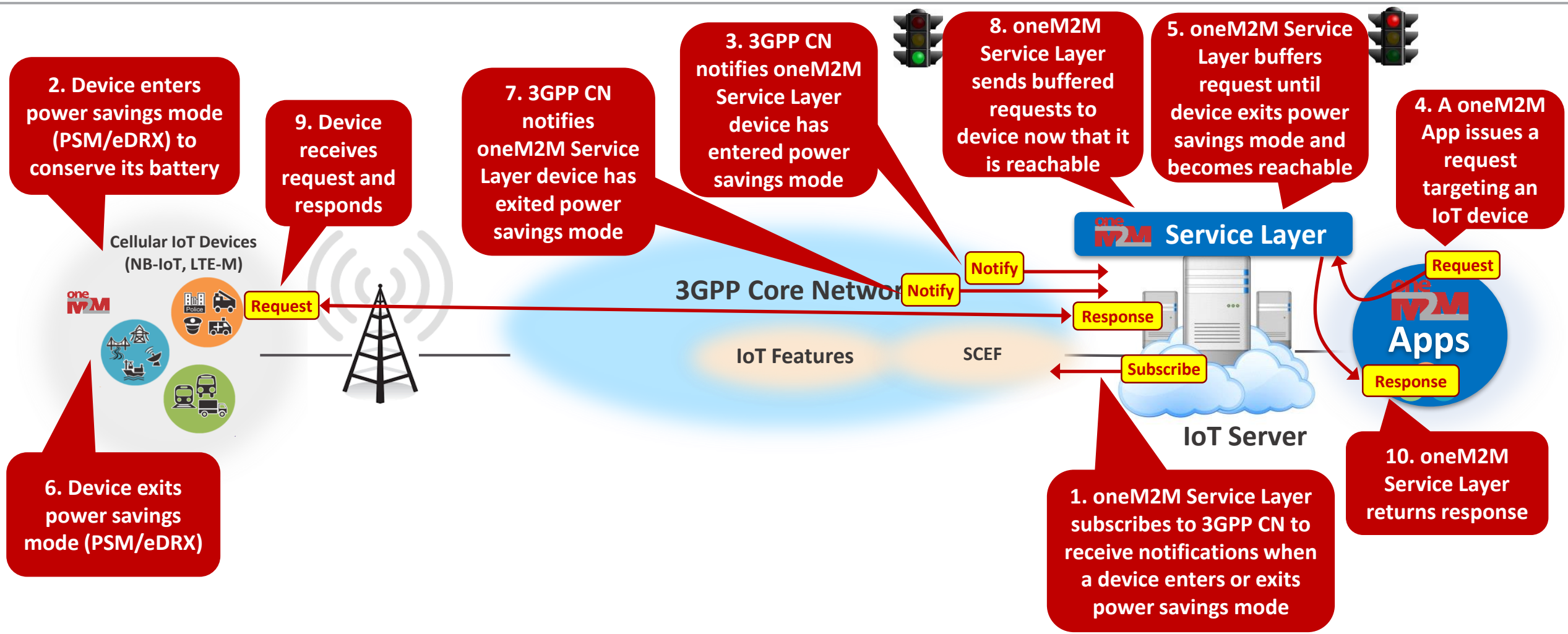
IoT Device Service Enrollment



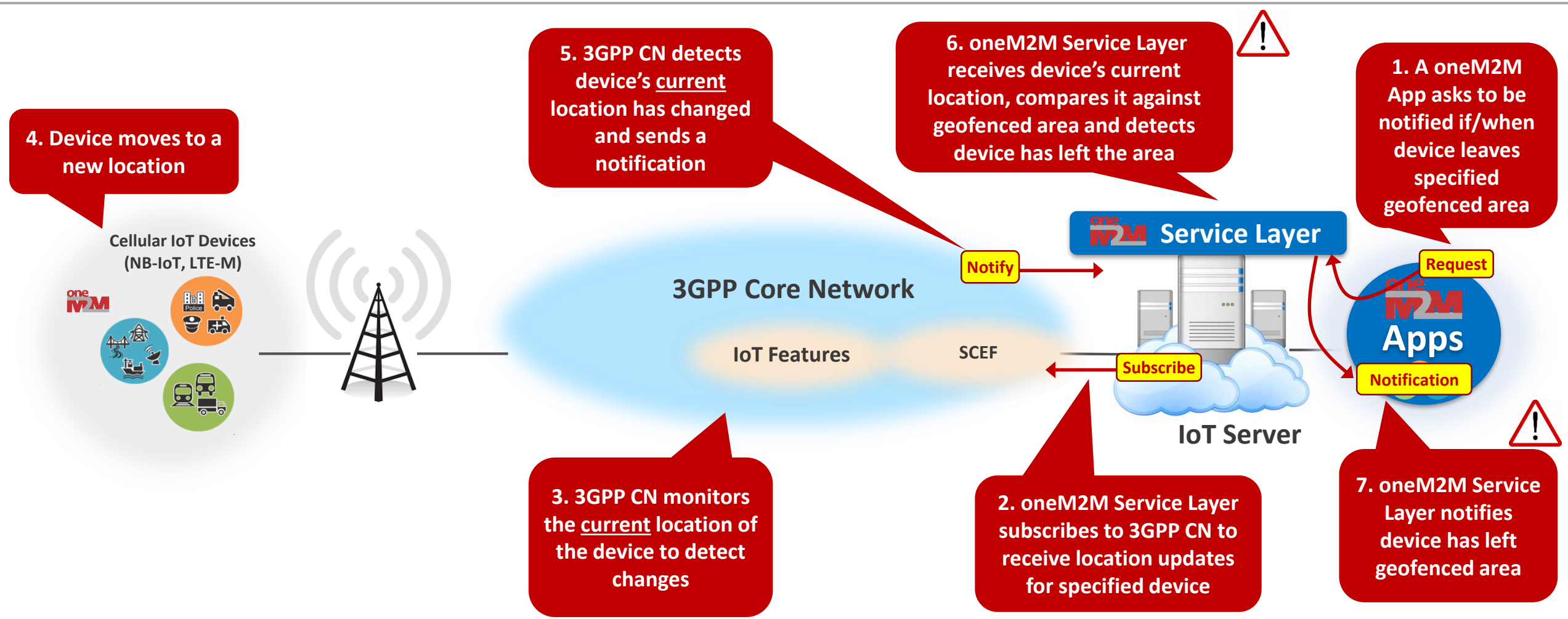
IoT Device Sleep Schedule Management



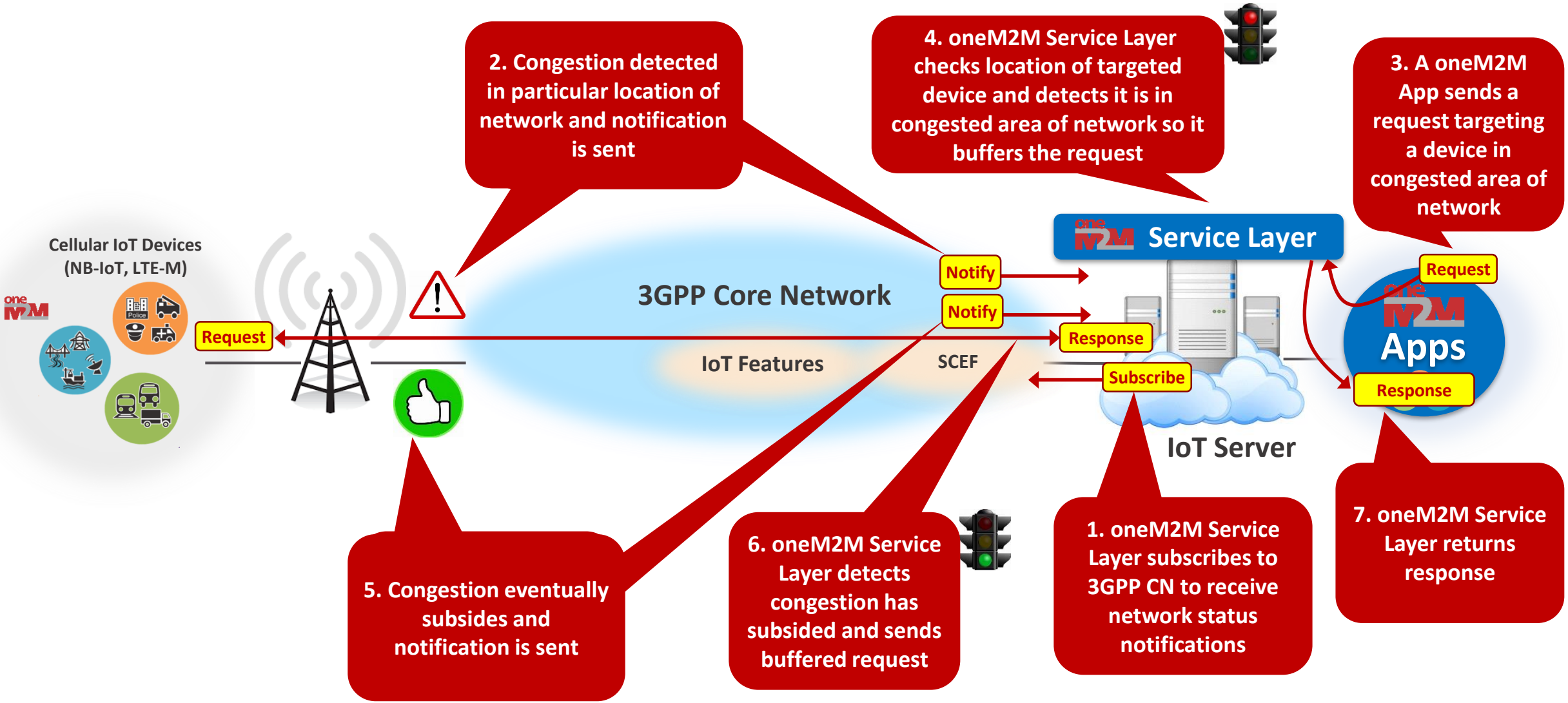
IoT Device Message Delivery Handling



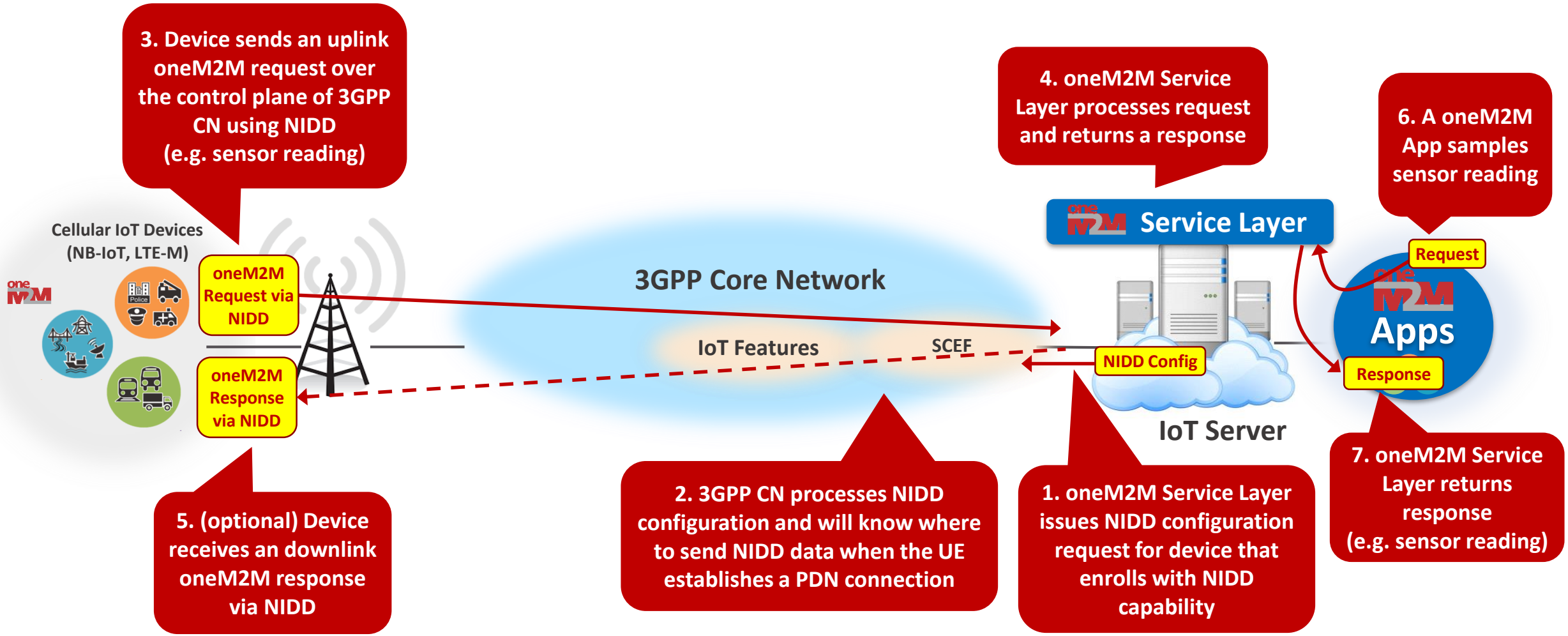
IoT Device Location Tracking



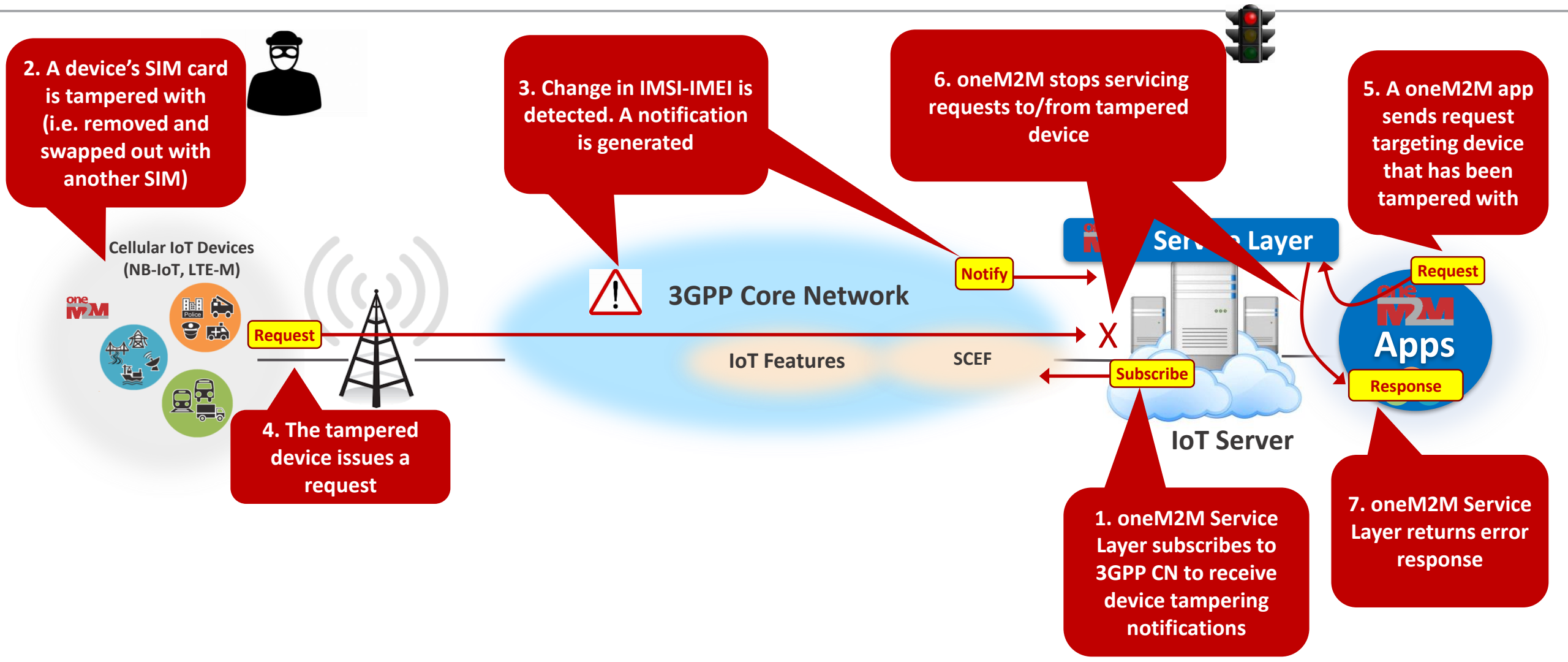
3GPP Network Congestion Control



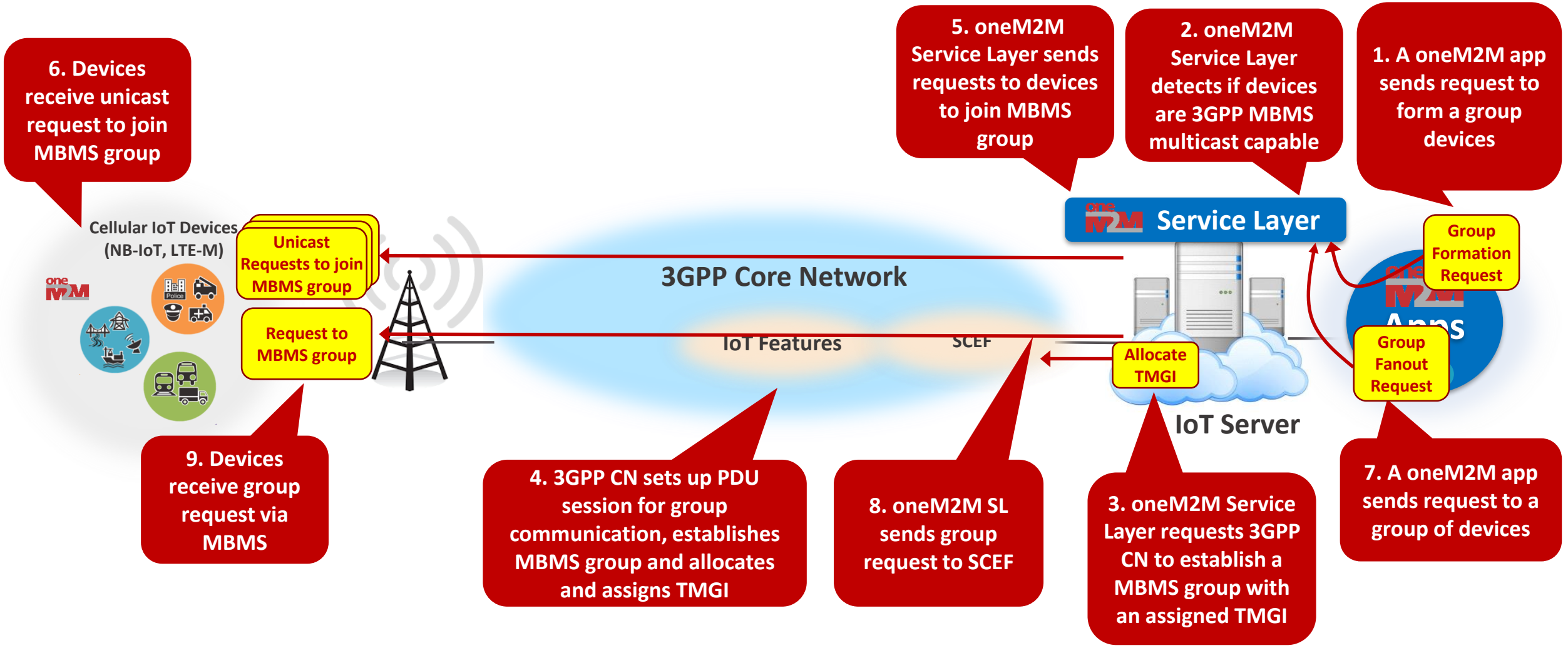
Non-IP Data Delivery (NIDD)



IoT Device Tampering Detection



Management of Groups of IoT Devices



Summary

- oneM2M Rel-3 interworks with 3GPP IoT features
- oneM2M provides complimentary value-add services over top of 3GPP IoT features
- oneM2M eases use and adoption of 3GPP IoT features by IoT devices and apps
- oneM2M enables operators to move up the value-chain and offer value-add IoT services

Thank You!

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