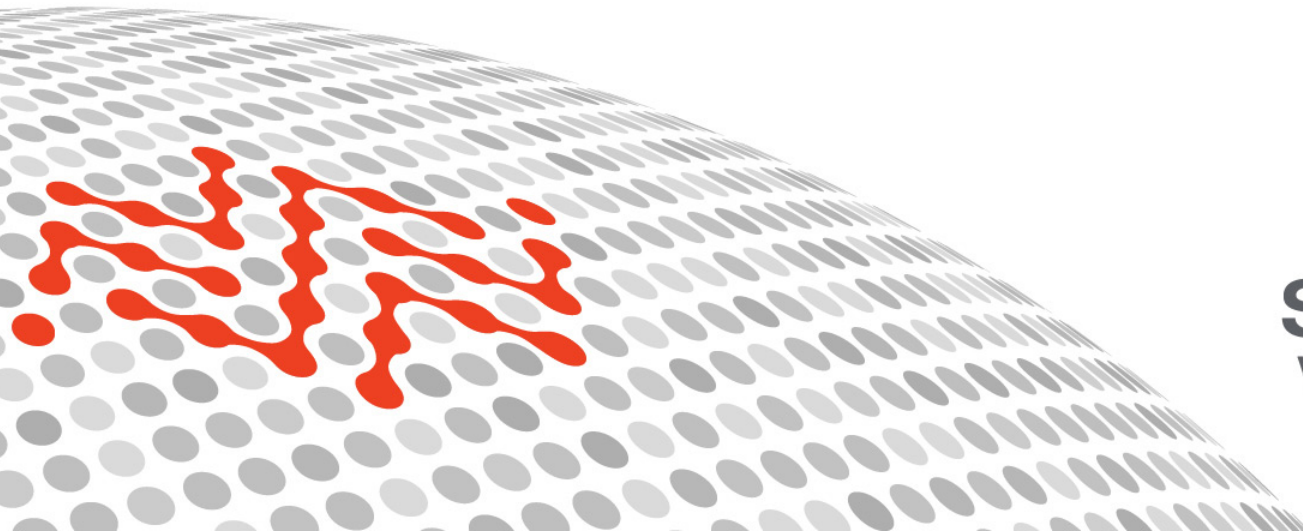# Optimized communication management in M2M horizontal platforms

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ETSI M2M Workshop, December 10th 2014

Agenda

- **Sierra Wireless Introduction**

- **A Network Horror Story**

- **The need for M2M communication management**

- **Undergoing efforts at 3GPP and oneM2M**

- **oneM2M CMDH Prototype**

Sierra Wireless Introduction

Global leader
in devices and cloud services
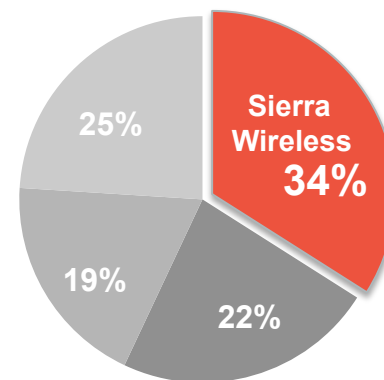for the Internet of Things

Industry's most comprehensive offering

Proven technology innovators
and trusted partner

Founded in 1993

LTM revenue: $518 million

**Publicly listed
NASDAQ (SWIR)
TSX (SW)**

**Cellular M2M Embedded Module
Revenue Market Share in 2013[1]**

- **Sierra Wireless 34%**
- 22%
- 19%
- 25%

[1] Source: ABI Research - 2014

R&D

**Head office:
Vancouver** ★ **R&D**

R&D

Approx. 900 employees worldwide

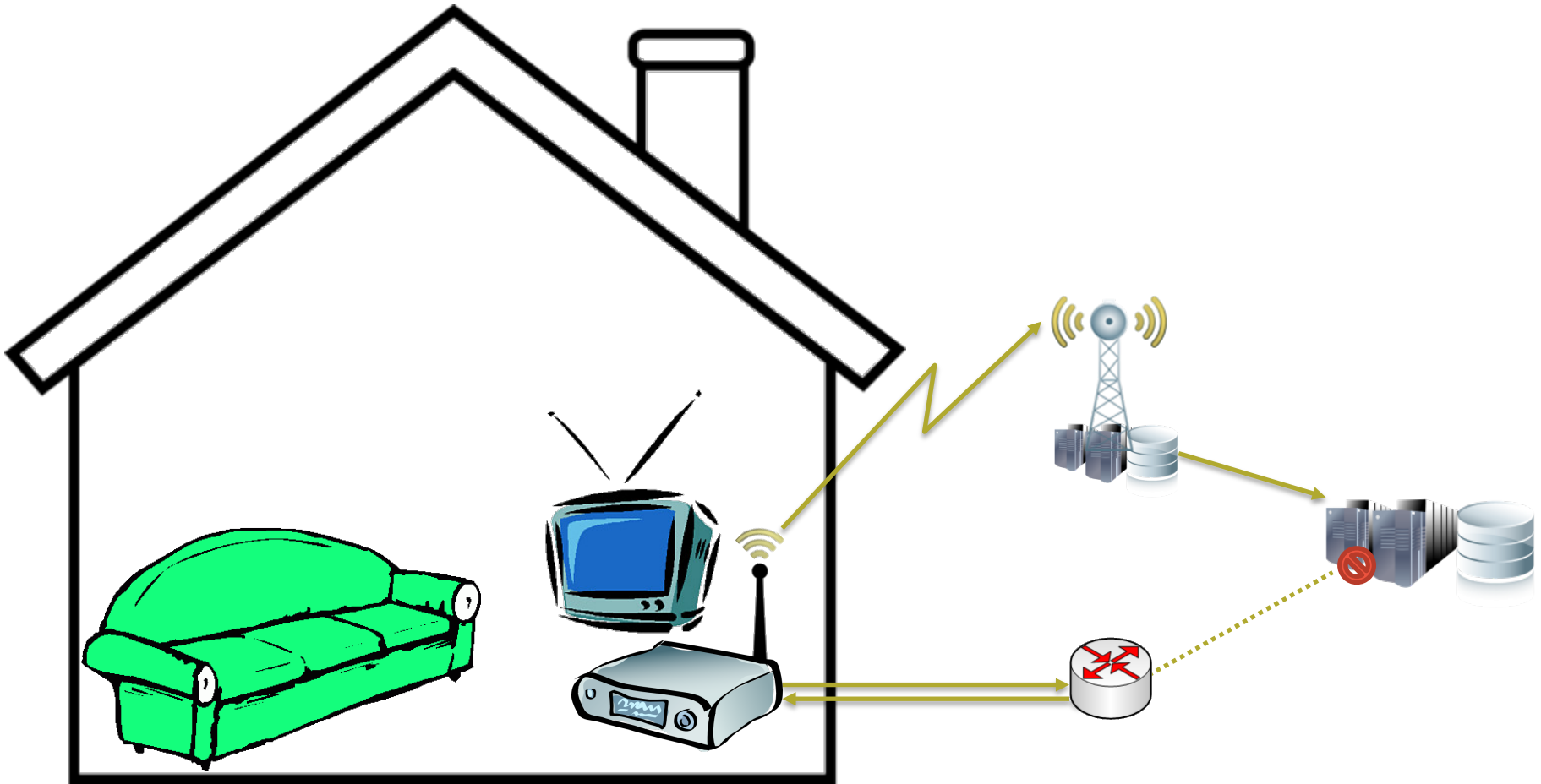**Customers in 130+ countries**
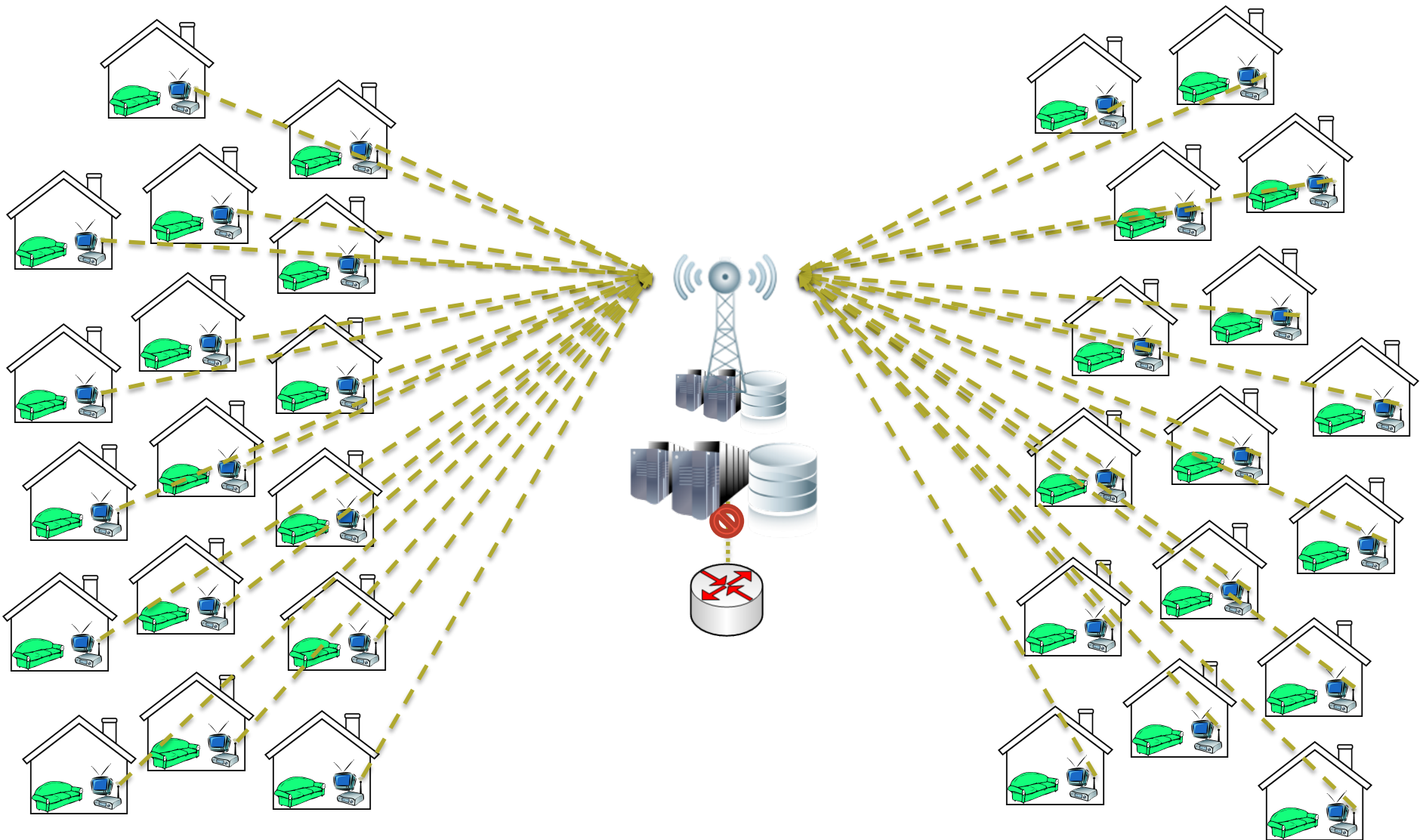
SHAMBLING ROUTERS

Loading...

OVERLOADED ANTENNAS

UNAVAILABLE SERVICE

Network Horror Story – Scenario "All is well"

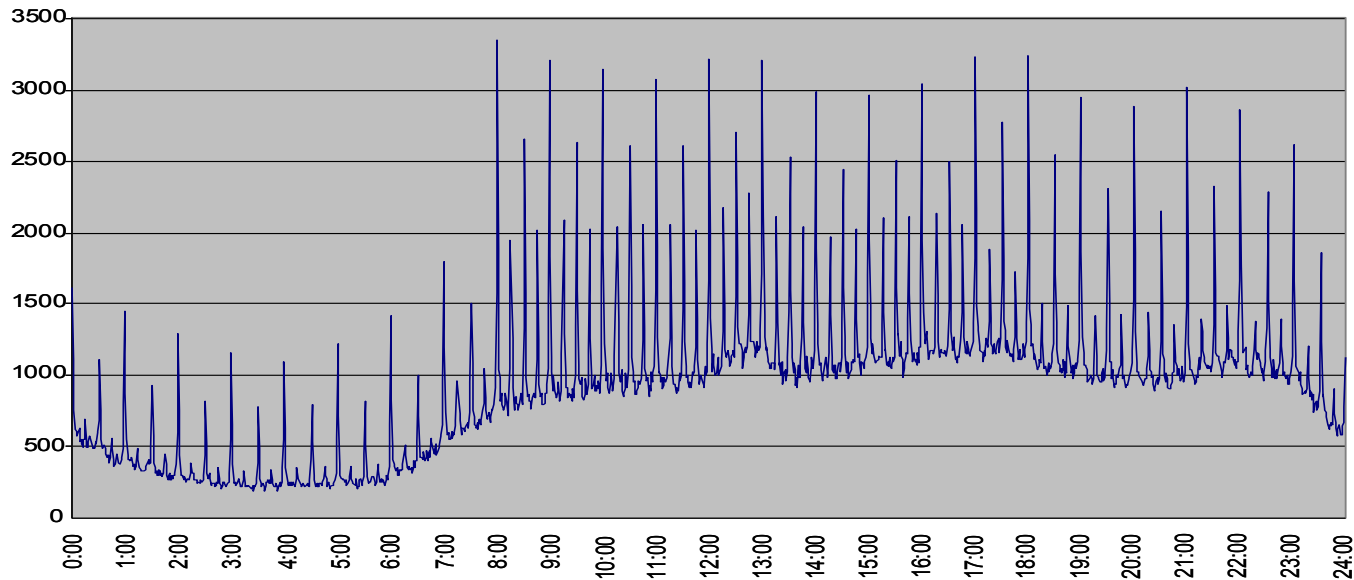# Network Horror Story – Scenario "All goes wrong"

Network Horror Story – The inevitable outcome

The bad news – this is no made-up story

- **Constant load of periodic communications**

- **Traffic Storms**

  - GSMA: 375k IoT devices led to a 48h network breakdown in 2013

  - ENISA: 45 incidents for each time 1.4 Mio mobile users in 2013

The good news – there are solutions

- **Network-side protection - 3GPP Release 10**
  - LAP: Low-Access Priority
  - EAB: Extended Access Barring
  - PCC: Policy and Charging Control

- **Device-side management - oneM2M Release 1**
  - CMDH: Communication Management & Delivery Handling

M2M Communication Management Benefits
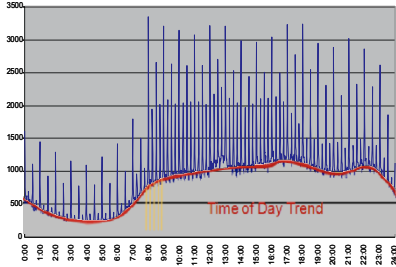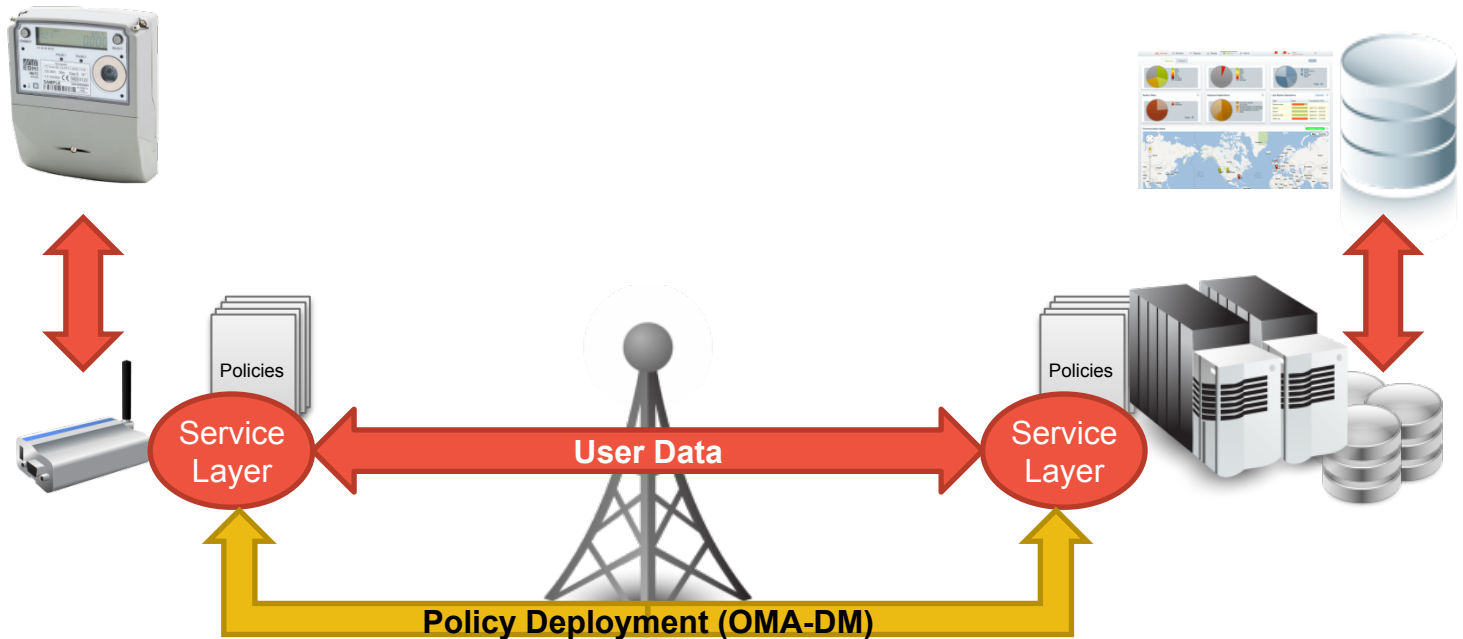

Maximize usage of network resources

Protection of the network

Better business control

oneM2M CMDH High-level Architecture

Device Side: Client Software

- Applies CMDH Policies
- Controls client user data flow
- Contacts servers according to policies
- Receives policies from server

Cloud Side: Server Software

- Applies CMDH Policies
- Controls server user data flow
- Contacts devices according to policies
- Deploys policies to device

oneM2M CMDH Event Classes

Smart Metering Use Case

Event Classes

- Low-Priority Event Class   Bulk Maintenance Information
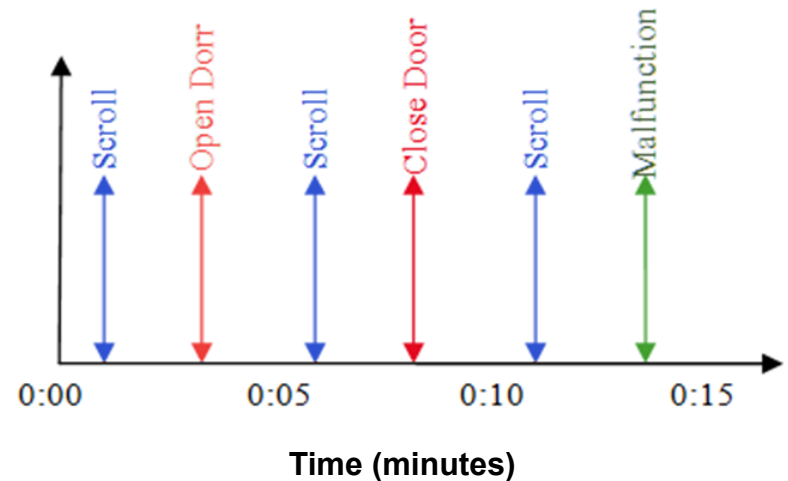 Low-Priority Event Class   Firmware/Software upgrades

- Standard Event Class   Periodic readings

- Real-time Event Class   Malfunction alarms
  Real-time Event Class   Smart Grid consumption thresholds
  Real-time Event Class   Remote equipment triggering
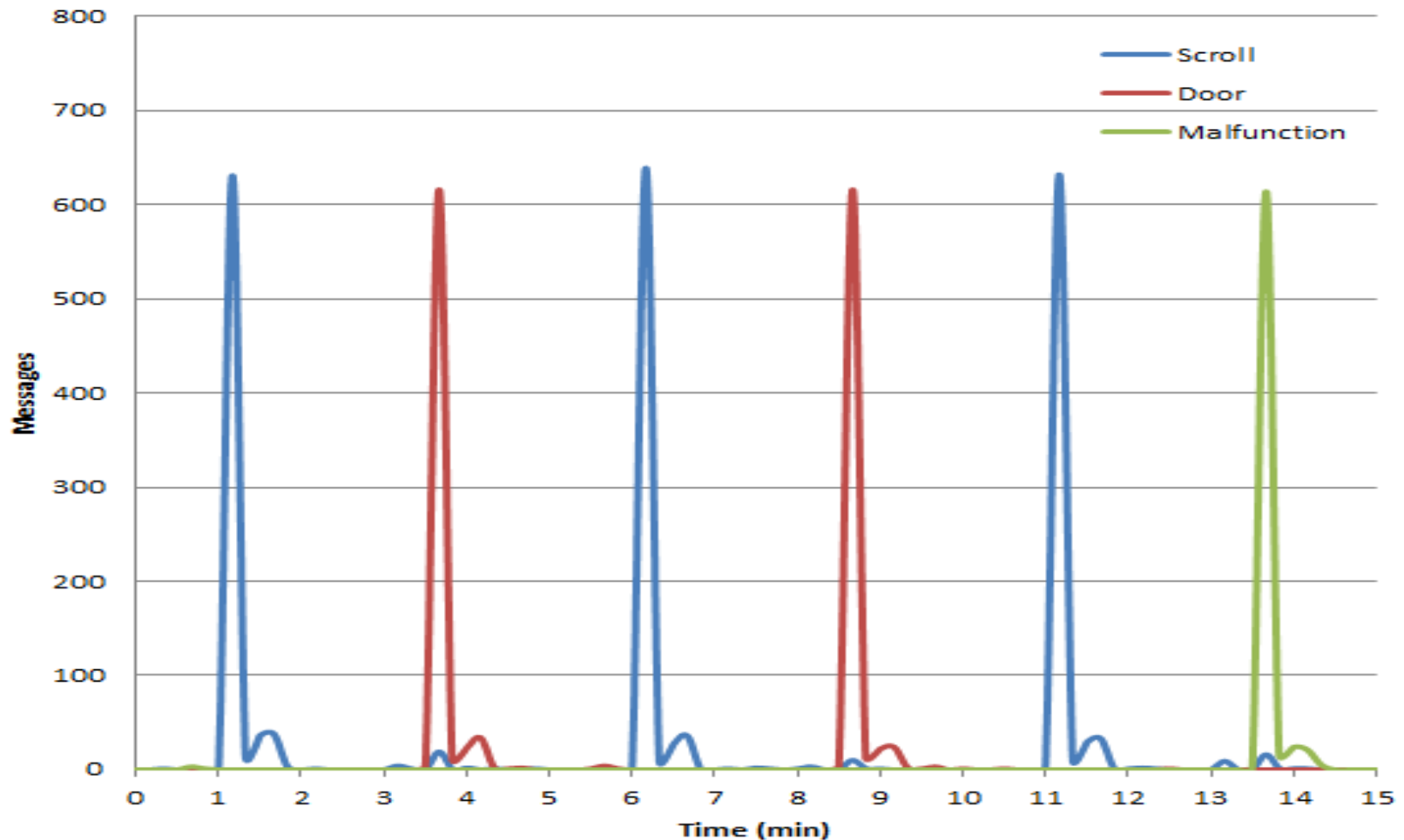
oneM2M CMDH Prototype – Overview

Event Classes

- Low Priority   Scrolling events
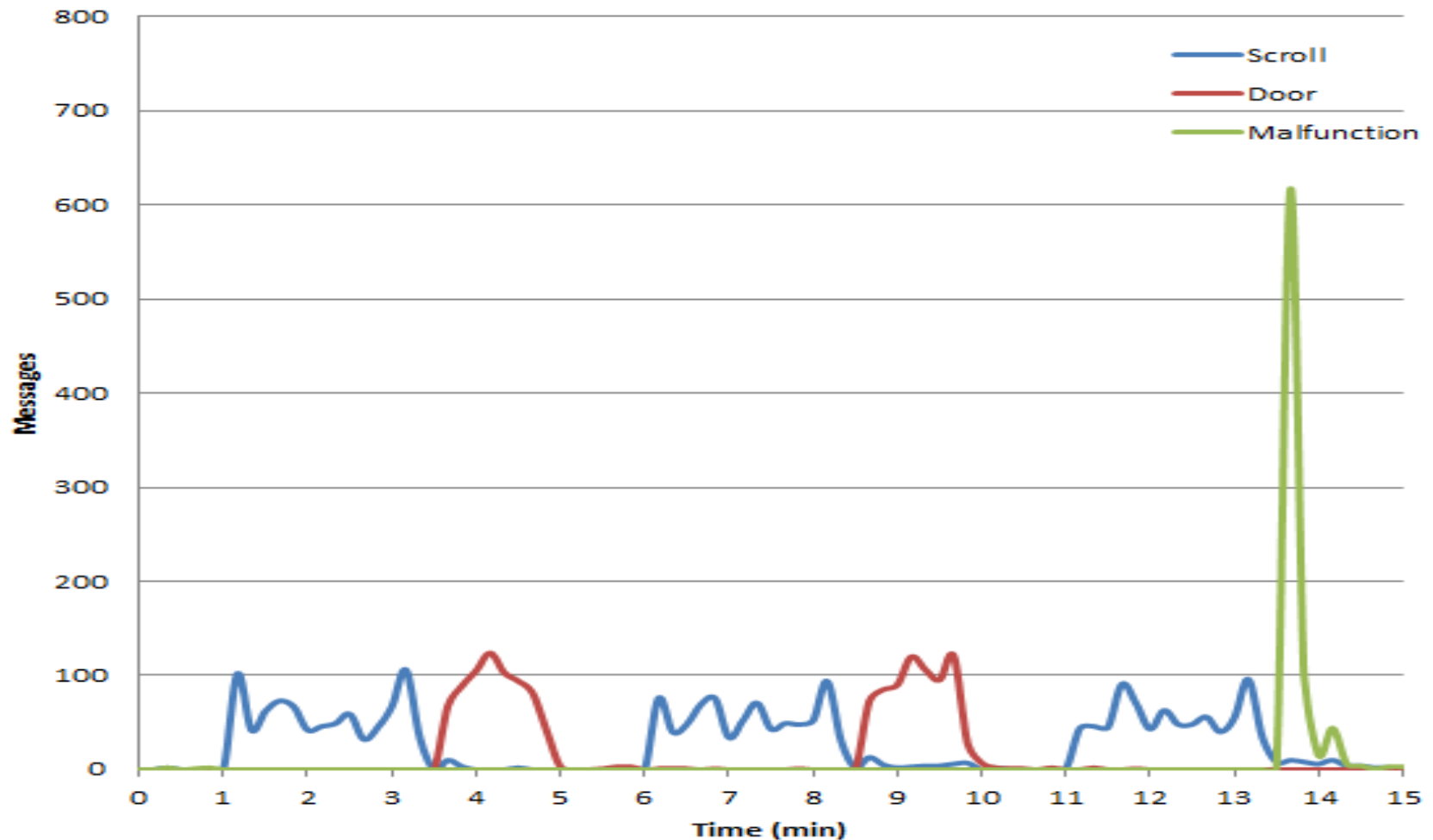- Med Priority   Open/Close Door
- High Priority   Malfunction events

13

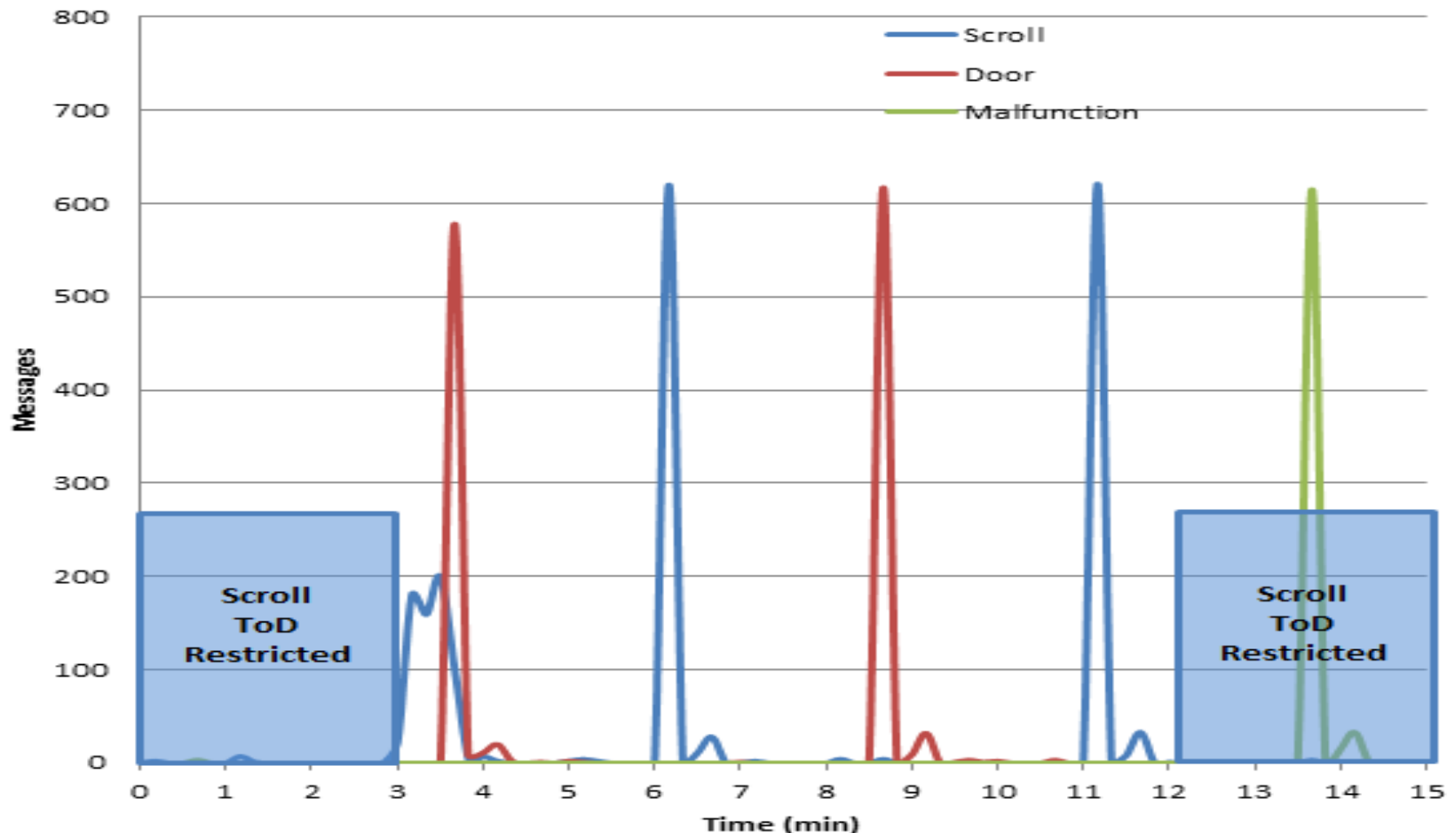# oneM2M CMDH Prototype – Baseline

No Policies

oneM2M CMDH Prototype – Data Spreading 1

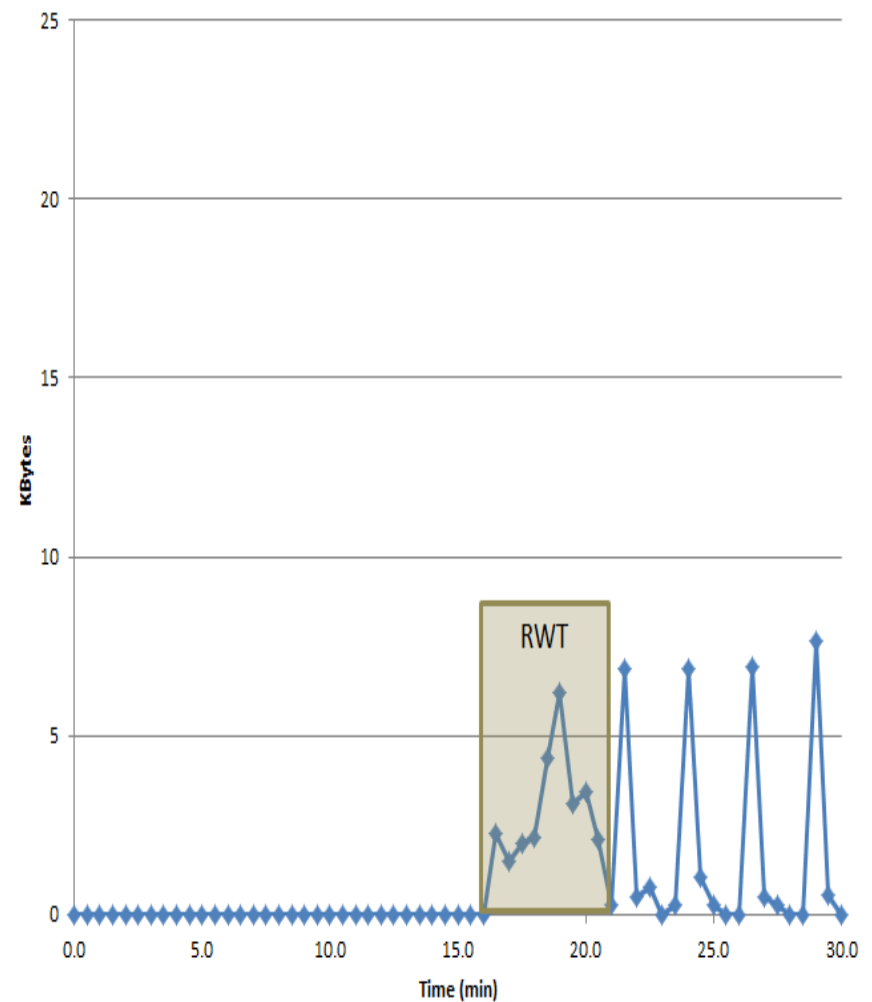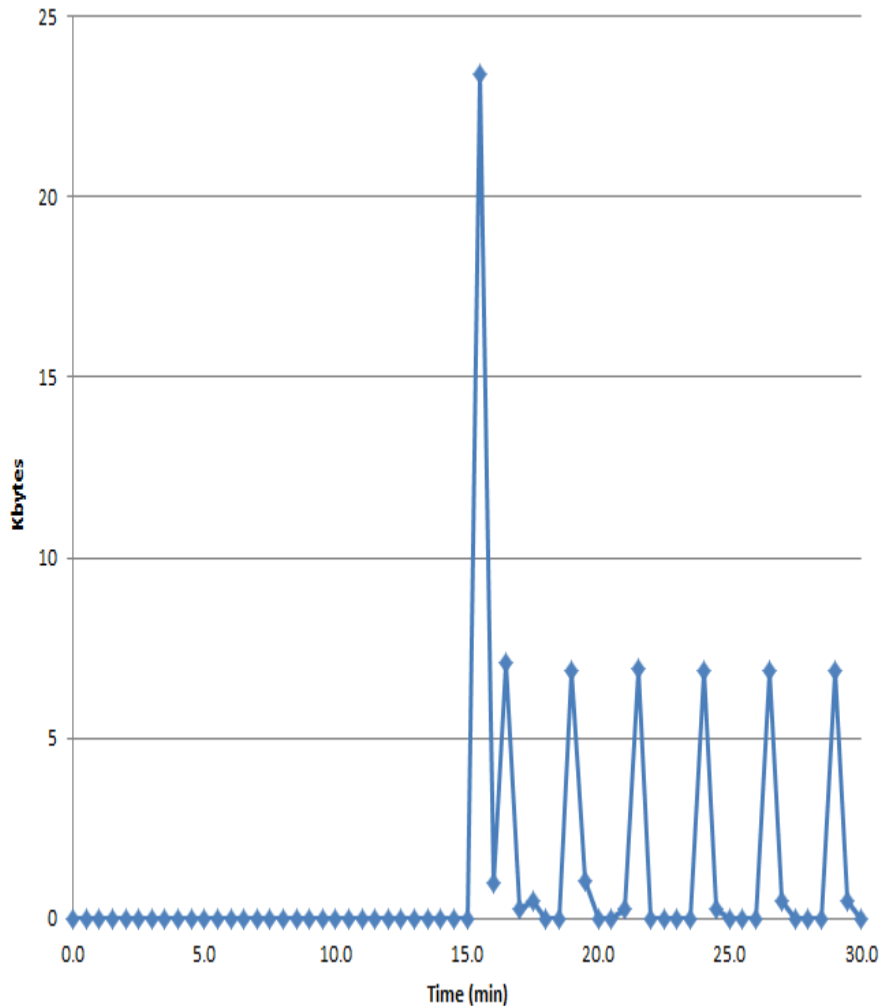**Policy:** Scroll: spreading=2 min   Door: spreading=1 min

oneM2M CMDH Prototype – Data Blocking

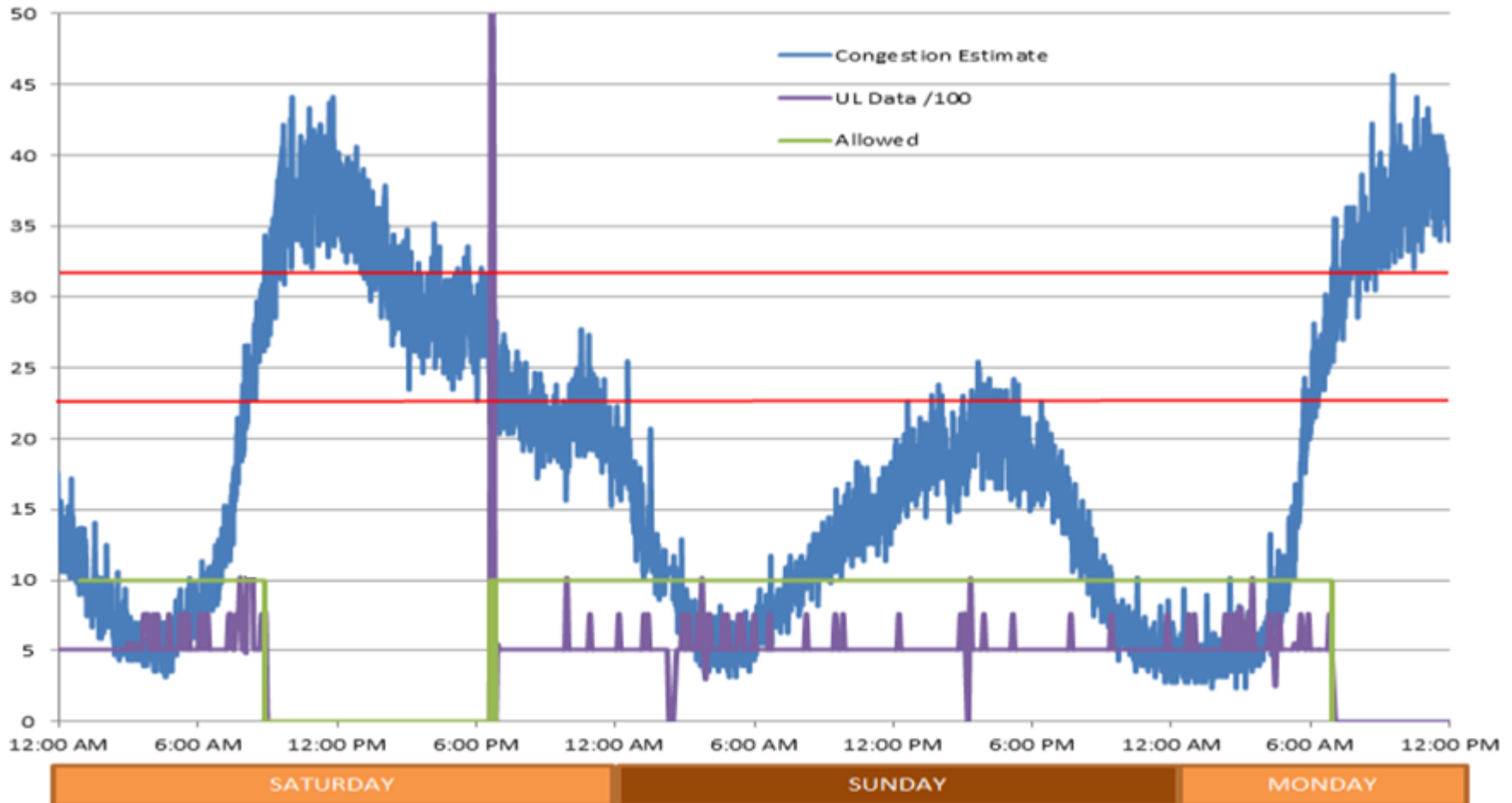**Policy – block Scroll +- 3 min on 15 minute boundaries**

oneM2M CMDH Prototype – Data Spreading 2

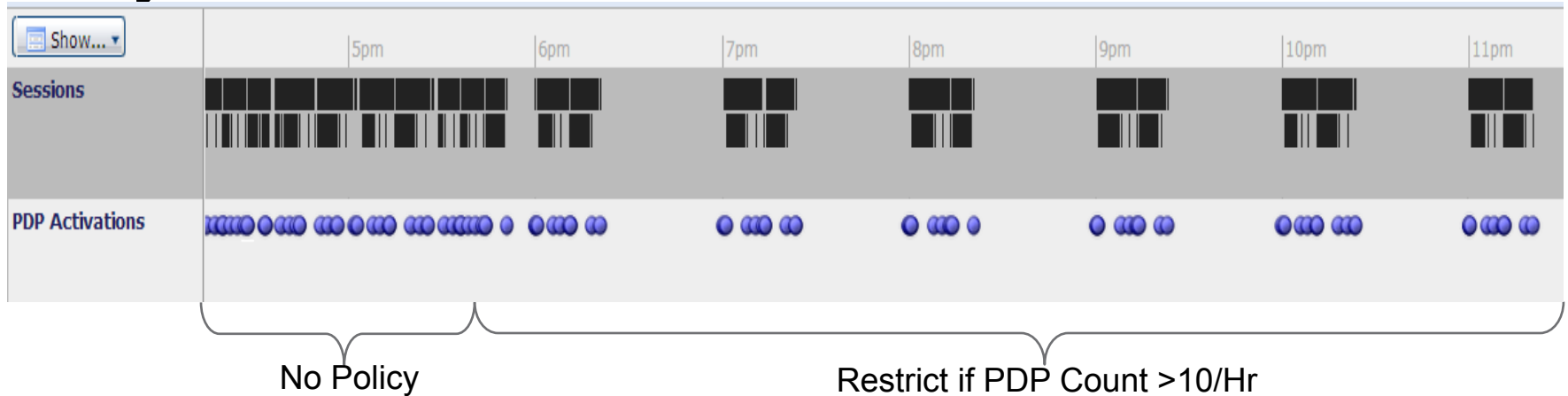**Time of Day +- 15min, Randomize Start Time= 5min**

oneM2M CMDH Prototype – RAN Congestion

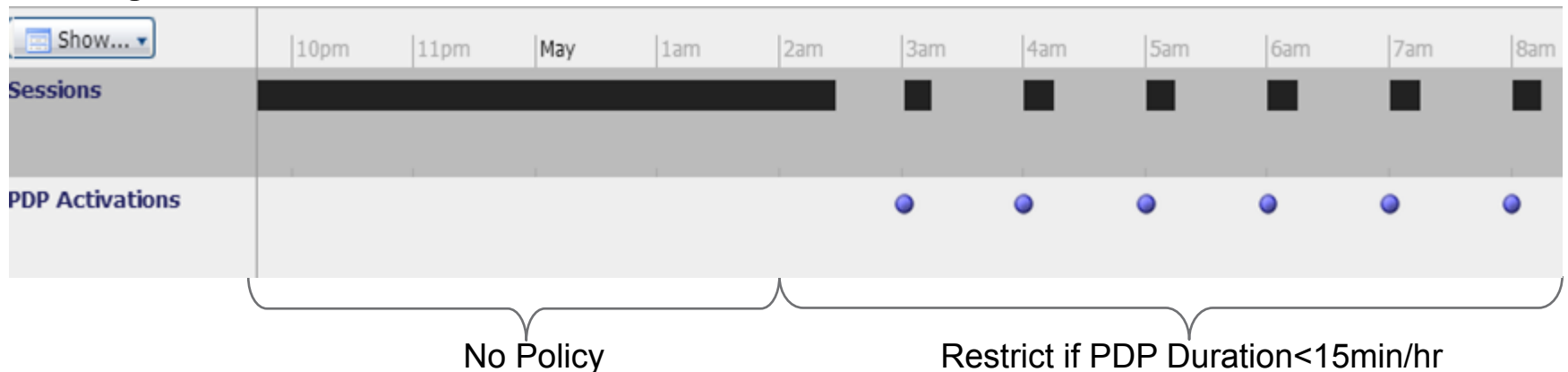**Policy: Restrict access if congestion >27% +-5%**

oneM2M CMDH Prototype – Signaling Storm

Policy - PDP Count >10/Hr

No Policy

Restrict if PDP Count >10/Hr

Policy - PDP Duration > 15min/Hr

No Policy

Restrict if PDP Duration<15min/hr

Thank you - Questions?