



Integration of M2M into the UAE NNP

NNP History - UAE

- The UAE NNP managed by UAE's incumbent
- Since the Establishment of UAE TRA in 2003, the NNP went through many refinements:
 - Version 4.0 2006
 - .
 - .
 - Version 5.4 2016

Plan to have it revised in 2019 as well

NNP Framework (6/1)

Geographic Numbers :(0Z+XXXXXXXX)

- Abudhabi : 02
- ALAIN: 03
- DUBAI: 04
- Shajah, Ajman, Umm AlQuwain: 06
- Ras AlKhaimah: 07
- AlFujairah 09

The NNP allows the allocation of the GEO-Numbers in ranges of 10,000 Numbers.

(6/2)NNP Framework

(Mobile Numbers)05Z+XXXXXXXX

- Callers have to dial 05Z to establish the call
- Allocated ranges
Etisalat: 050,056,054
EITC : 055,052,058

Each prefix holds 9 Millions Numbers

(6/3)NNP Framework

(VOIP services) 081+XXXXXXXX

- Callers have to dial 081 to establish the call

(085+XXXXXXXX) TETRA services

- Callers have to dial 085 to establish the call

(6/4)NNP framework

Added Value Network services Numbers

- 400 - Free Access Services
- 600 - Fixed Cost Services
- 700 – Shared Cost services
- Toll-Free Numbers – 800 (800+2 digits up to 800+9 digits)
 - 800123
 - 8001234
 - 80012345
 - 800123456
 - 8001234567 etc.

- 8000 - International Toll-Free Numbers
- 900 – Shared Revenue Services and/or Premium Rate Services
- Numbers reserved for future usage:
 - ☐ 200XXXXXX
 - ☐ 300XXXXXX
 - ☐ 500XXXXXX

(6/5)NNP framework

Public Non Emergency Services

(9+0+X)

- 901 and 909
Non-Emergent police services

Emergency services

(9+9+X)

- 991,992
Electricity / Water
- 993
municipality
- 995
Search and Rescue
- 996
Coast guard
- 997
Fire
- 998
Ambulance
- 999
Police

(6/6)NNP Framework

Short Message Services (SMS):

A) Normal SMS – Usual Rates

B) Premium SMS – higher Rates

(Level 1 Short Codes)

- Numbers Used by Operators to provide services : 181, 101, 199
- Emergency Number 112

Allocation Process

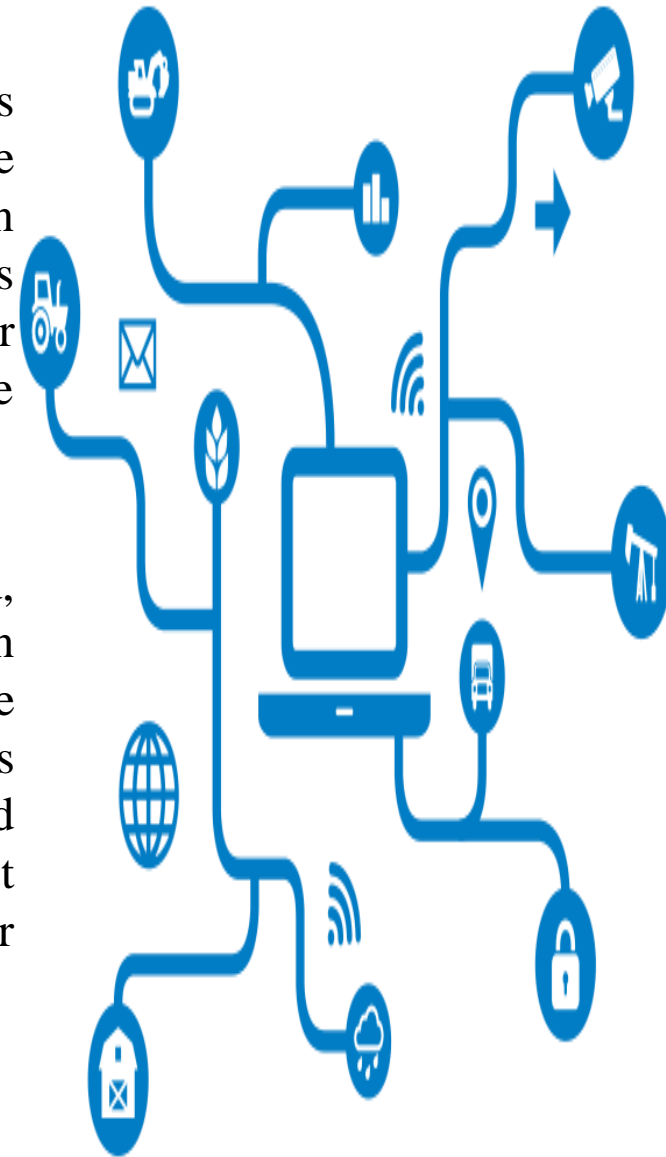
- In 2015 the TRA Officially deployed Number Process Automation System “NPAS” – Allowing processing the numbering request instantly.
- It was build on a Pre-Paid Principle
- An Operator is allegeable to apply for a new range if the already-allocated ranges are at 75% utilization rate

Study of M2M

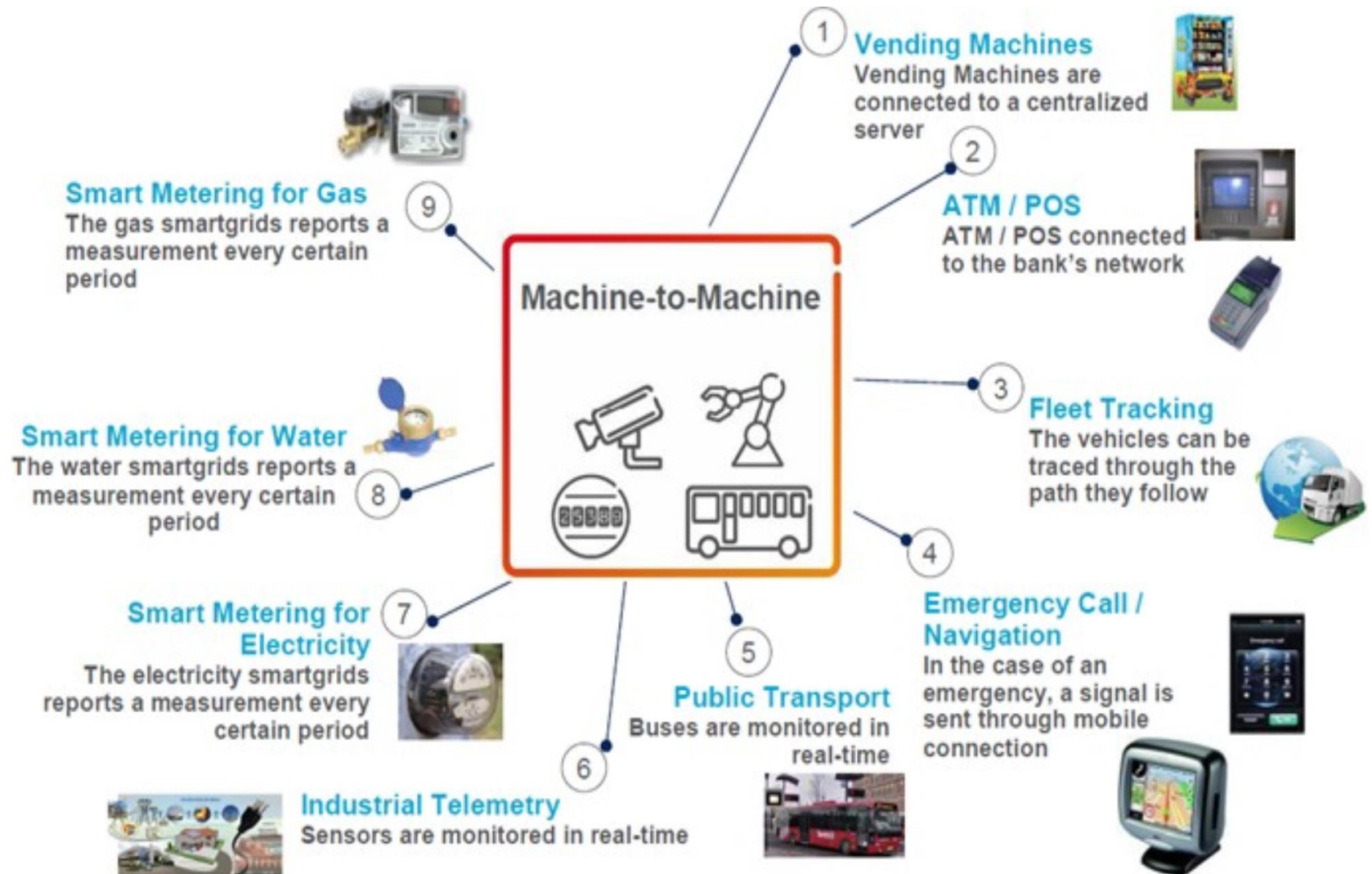
- **Before starting the including M2M to UAE telecom, deep comprehension of the topic and its application was needed**
- **The following questions were asked:**
 - ☐ **What exactly is M2M?**
 - ☐ **What is Machine to Machine communications?**
 - ☐ **Why m2m? Potential is huge?**
 - ☐ **m2m by Digital Technologies – Air Interface & Frequency Bands (MHz)**
 - ☐ **The Cellular Module main building blocks**
 - ☐ **The Cellular Module Major Specification**
 - ☐ **m2m Application – Design Considerations**
 - ☐ **Cellular Products - GSM/GPRS Cellular Module spec**
 - ☐ **Cellular Products – CDMA 1X/EV-DO Cellular Module spec**
 - ☐ **Cellular Products - UMTS/HSPA/LTE Cellular module spec**
 - ☐ **m2m Applications - Key Verticals**
 - ☐ **.**
 - ☐ **.**
 - ☐ **.**
 - ☐ **Many Many more**

WHAT is M2M?

- ❖ **M2M** : stands for machine-to-machine, encompasses all hardware, software, and processes that enable machine management related communication between different machines and between machines and people. This is accomplished via the proper utilization of telemetry, which is the language machines use when communicating with each other.
- ❖ **Reality** : M2M communication continues to expand, driven primarily by the expansion of next generation telecommunications technology and a decline in the cost of the embedded wireless modules and sensors that enable M2M services. This continued improvement in the infrastructural environment surrounding M2M has led to growth in the number of applications and services now available

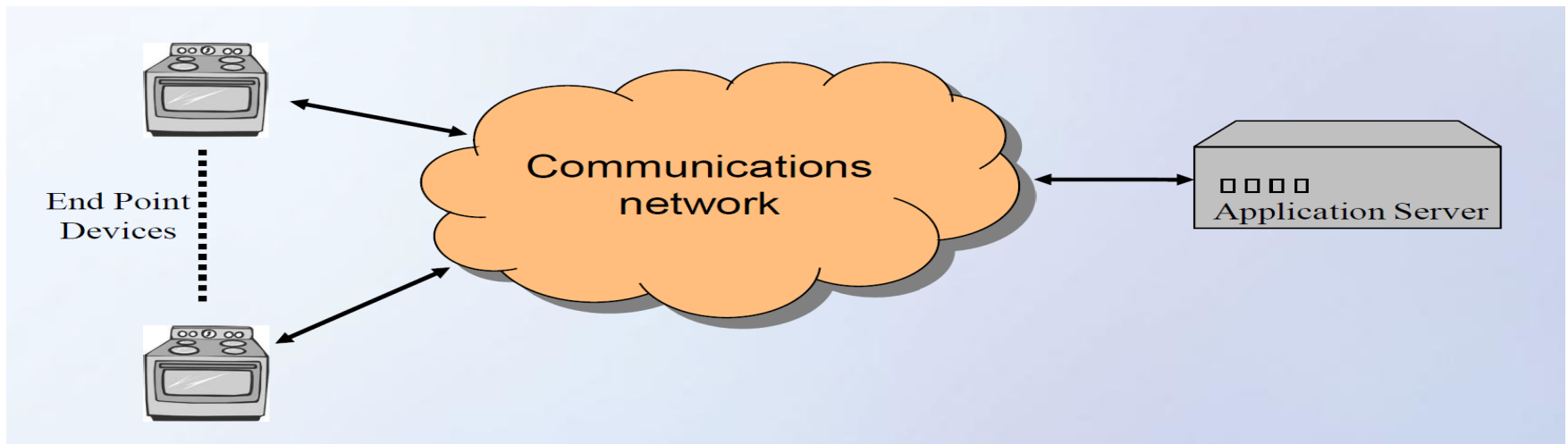


Potential of M2M



M2M Addressing:

- ❖ M2M Communications : **data communication between devices or systems** in which **human intervention is not a part**:
 - ❖ Communications between machines/devices
 - ❖ Data exchange in an automatic or scheduled manner
 - ❖ Little or no human intervention
- ❖ Given: Each machine needs to be **uniquely** addressed :
 - ITU-T E.164 numbers
 - IP Addresses



Numbering Resources for M2M Applications

- ❖ It was concluded above that E.164 mobile numbering resources would be the most viable methods for addressing M2M applications. The basic options are as follows (option A is based on mobile infrastructure, while options B, C and D are independent of underlying network technology):
 - ✓ **Option A**: Existing mobile number ranges, including possible expansion of them (E.164 numbers)
 - ✓ **Option B**: A new number range for M2M or similar applications (E.164 numbers) (for example longer numbers than normally, however max 15 digits according to E.164)
 - ✓ **Option C**: An international numbering solution (E.164 numbers).
 - ✓ **Option D**: Network internal numbers.

Option B: A new number range for M2M or similar applications (E.164 numbers) (for example longer numbers than normally, however max 15 digits according to E.164)

Advantages of NEW Range for M2M

- ☐ Full capacity of numbers of the new range is available
- ☐ Large blocks available for each operator
- ☐ A fresh start for number analysis
- ☐ A fresh start for possibly different regulatory requirements
- ☐ May allow easier back-office solutions, such as charging and billing

M2M Number in UAE
(+971) -83-XXX-XXX-XXXX

شکرا

أرقام آلة إلى آلة (M2M)

أرقام خدمة آلة إلى آلة M2M والرسم الخاص بأرقامها:

تعتبر خدمة آلة إلى آلة (M2M) إحدى الخدمات الحيوية التي من المتوقع أن يتزايد الطلب عليها في المستقبل القريب وخصوصاً مع التوجه العام لدولة الإمارات نحو المدن الذكية والحكومة الإلكترونية الذكية والحوسبة السحابية. كان المرخصون سابقاً يستخدمون أرقام من النطاقات الرقمية المخصصة للهواتف المتحركة لتقديم خدمات آلة إلى آلة (M2M) الأمر الذي يشكل ضغطاً كبيراً على هذه النطاقات الرقمية ويهدد بنضوبها في المستقبل القريب أخذاً بعين الاعتبار أن الموارد الرقمية هي موارد محدودة وعليه تم عمل ما يلي:

- فتح نطاق رقمي جديد لخدمة آلة إلى آلة (M2M) تحت المستوى 083 على أن:

- يتألف النطاق الرقمي المخصص لخدمة آلة إلى آلة (M2M) من 15 خانة رقمية (الحد الأقصى من الأرقام بحسب توصية (ITU E.164) كما يلي :

(971)-83-XXX-XXX-XXXX

- أن يكون الرسم السنوي لأرقام خدمة آلة إلى آلة (M2M) (10% مقارنة بتكلفة الموبايل) وذلك لتماشيا مع المقارنات العالمية بهذا الخصوص ولدعم المرخص لهم لاستخدام هذا النطاق لخدمات M2M مما يخفف الطلب المستقبلي على موارد أرقام الهواتف المتحرك.
- تم تحديد سعة المجموعات الرقمية بعدد 100 ألف رقم للمجموعة

Standardization activity for M2M

3GPP Standardization Group:

- Aims to optimize the system design that can mitigate M2M signaling congestion and network overload problems

ETSI Standardization Group:

- The Goal of ETSI TC M2M is to support a wide range of M2M application and needed functions (e.g. functional architecture and interface s Standardization) to be shared by different M2M application.

OneM2M:

- Its objective is to meet the critical needs for designing a common M2M service layer, which can be easily embedded within different hardware and software to connect a large number of devices with M2M application servers

Technical implementation model

