ITU WORKSHOP ON

NUMBERING PLANNING AND CONVERGENCE ISSUES

Séminaire sur les systèmes de numérotation et leurs convergences

Accra Ghana; 28th – 30th April 2010
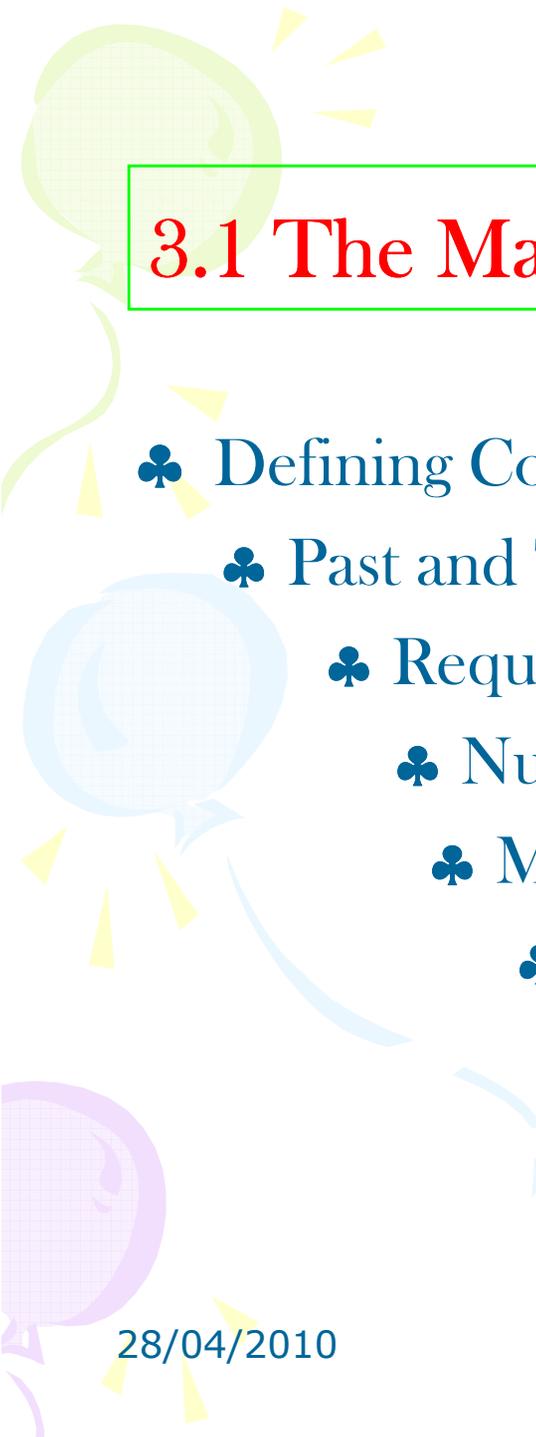
SESSION 3
The major challenges of numbering

3.0 The major challenges of numbering

- ♣ Competition
- ♣ Number Changes
- ♣ Convergence of Services and Networks
- ♣ Machine-to-Machine Communication
- ♣ ITU-T Initiative on Future Numbering Plan

3.1 The Major Challenges: *Competition Issues*

♣ Defining Competition

♣ Past and Today's Demand for Numbering

♣ Required Characteristics of a Numbering Plan

♣ Numbering Plan as a competition enabler

♣ Managing the resources in a competitive setting

♣ Session Summary

3.1.1 What is Competition?

♣ **Competition** is the rivalry of two or more parties for something. Competition occurs naturally between living organisms which coexist in an environment with limited resources. For example, animals compete over water supplies, food, and mates. In addition, humans compete for recognition, wealth and entertainment

[From Wikipedia, the free encyclopedia].

♣ *Merriam-Webster* defines **competition** in business as the effort of two or more parties acting independently to secure the business of a third party by offering the most favorable terms.

♣ Competition therefore:

- ♣ *causes commercial firms to develop new products, services, and technologies. This gives consumers greater selection and better products.*

- ♣ *drives innovation and speed to market*
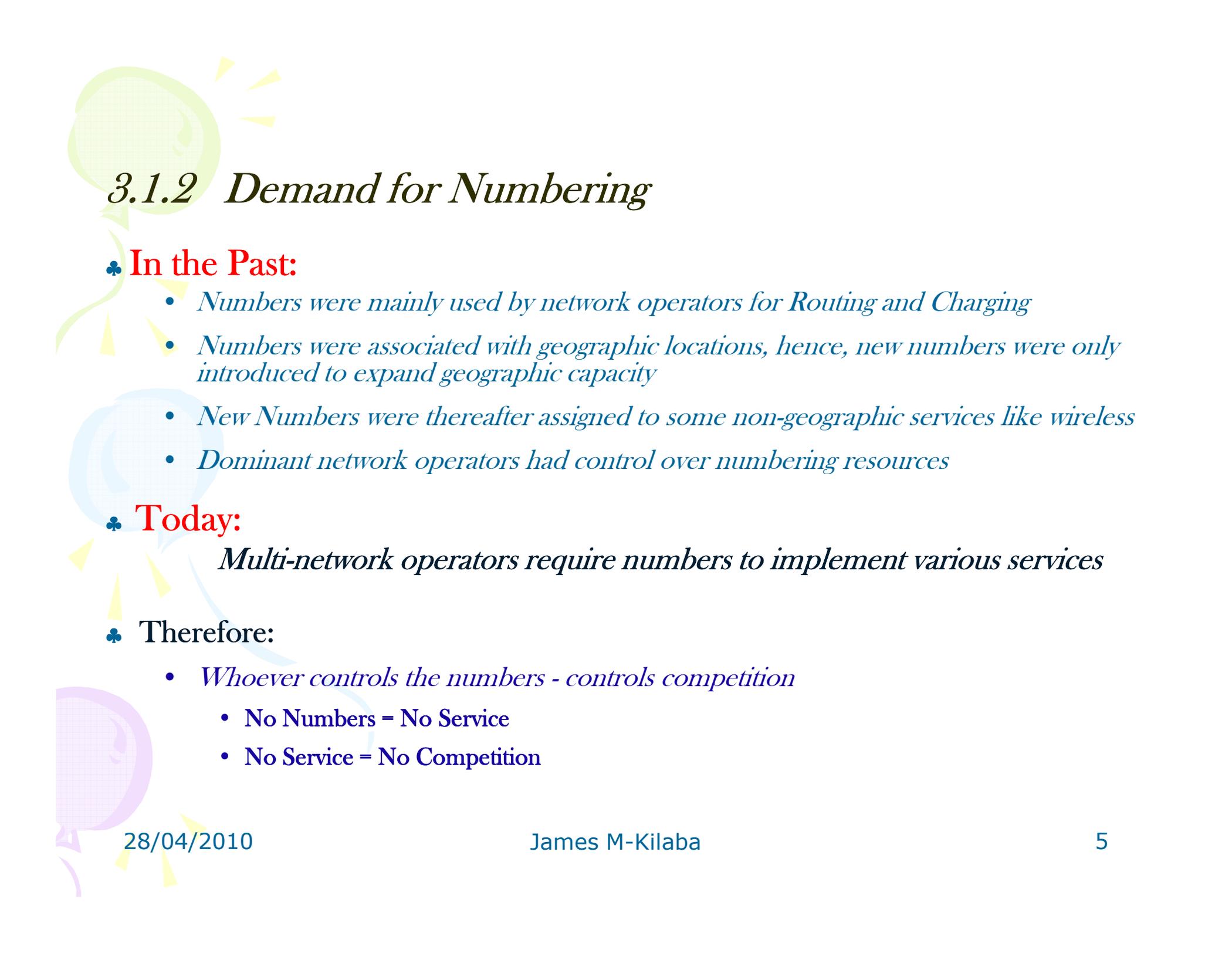
3.1.2 Demand for Numbering

♣ **In the Past:**

- *Numbers were mainly used by network operators for Routing and Charging*

- *Numbers were associated with geographic locations, hence, new numbers were only introduced to expand geographic capacity*

- *New Numbers were thereafter assigned to some non-geographic services like wireless*

- *Dominant network operators had control over numbering resources*

♣ **Today:**

Multi-network operators require numbers to implement various services

♣ Therefore:

- *Whoever controls the numbers - controls competition*
  - No Numbers = No Service
  - No Service = No Competition

3.1.3 Characteristics of a Numbering Plan

In a competitive environment the Numbering Plan should:

♣ accommodate new services:

- *There is a rapid growth in communication services*
- *Potential numbering resource demands should be evaluated in order to meet anticipated market growth*

♣ enable fair and equitable competition

- *Numbering resources should cater for the competitive markets in equal proportions for competing operators*

♣ permit ease and uniformity of use by subscribers

- *An overly complicated or non-uniform numbering and dialing plan will inhibit subscribers from using the telecommunications network and services to their full potential.*

Characteristics of a Numbering Plan 2

Further, the Numbering Plan should:

♣ allow for equitable user access to competing networks and service providers

- *If there is to be true, fair, and open competition in the telecommunications sector, user access to networks and services should be equivalent*

♣ promote number portability

- *Number portability is a key to the future in which all telecommunication carriers will be able to offer fully competitive, integrated end-to-end telecommunications services without subscriber number changes!*

♣ facilitate the definition of Carrier Selection arrangements

- *The definition and scope of a carrier selection procedures is usually defined by a Regulatory regime.*

3.1.4 Numbering as a competition enabler

♣ Remember we have earlier said that
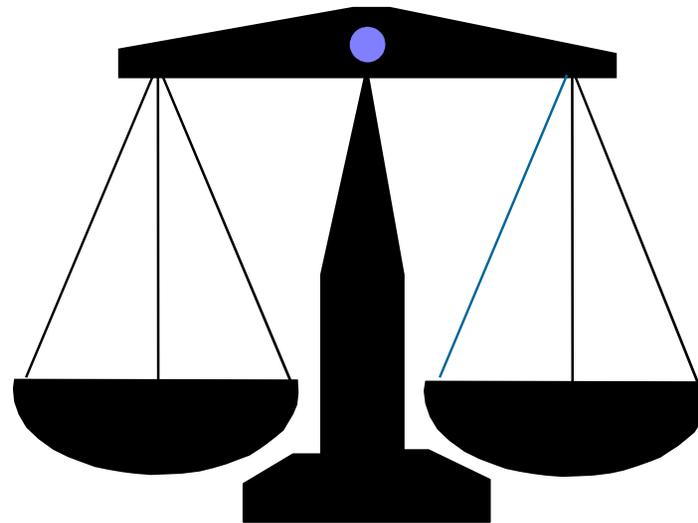
Whoever controls the numbers; controls competition

No Numbers = No Service

No Service = No Competition

♣ Hence, quality Numbering Plan serves as a competition enabler

3.1.5 The Resources Manager's Role

Resources Manager Provides the Balance

Competition Provides the Drivers

Technology Provides the Capability

LEADS TO HAPPY COMMUNICATIONS INDUSTRY

31.6 *The Challenges associated with Competition* - Summary

♣ The role of the **Numbering Plan Manager** is to strike the balance and create a happier industry

♣ Competition drives innovation and speed to market; *But ....*

♣ Whoever controls the numbers; controls competition

No Numbers = No Service

No Service = No Competition

Thus, quality Numbering Plan serves as a competition enabler

♣ Numbering plans should cater for market competition, and hence provide equal opportunities for competing operators

3.2 The Major Challenges: *Number Changes*

♣ Opinion on Communications Number Change

♣ Implementation Issues

♣ Stakeholders in the Game

♣ Stakeholders' Perspectives

♣ Implementation Guidelines

♣ Summary
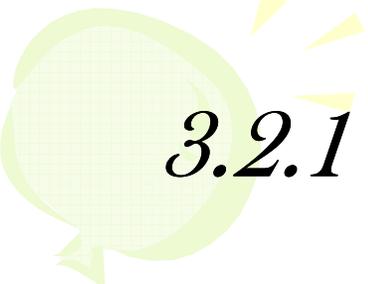
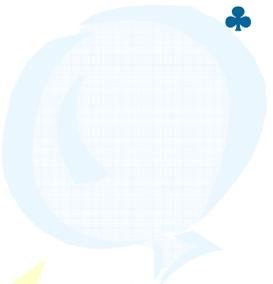# 3.2.1 Opinion on Number Changes?

Who likes Number Changes?

- Generally None.
    - Because ....
        - It disrupts Businesses
        - It consumes production times

- But where necessary, should be implemented properly.

3.2.2 *Number Change: Implementation Issues*

The basic issues include consideration:

♣ On the different perspectives of the stakeholders;

♣ That every number change is different in terms of:
  - *the actual changes themselves*
  - *the competitive environment*
  - *the governing regulatory environment*
  - *the culture, e.g. developed consumer attitudes*
  - *the deployed technology*

♣ That there is no '**Right Way**' to implement number changes

♣ Economical implications

3.2.3 Number Change: Affected Stakeholders

The Communications Numbering Plan Changes involve the following stakeholders:

- ♣ *Regulators*

- ♣ *Operators/ Service Providers*

- ♣ *Customers/Users*

- ♣ *Equipment Suppliers/Manufacturers*

3.2.4 *Number Change:* *Stakeholders' Perspectives*

♣ The Regulators usually *tend to Avoid*:

- *Unnecessary conflict with operators*

- *Public / political criticism*

- *Having Numbering Plan that do not support competition*

♣ Equipment Suppliers/Manufacturers *Worry about:*

- *Market Opportunity*
- *Cost of outstanding maintenance contracts*

3.2.5 Number Change: Stakeholders' Perspectives ...

♣ Operators/ Service Providers ......Worry about:

- Market disruption (existing Vs new entrant)
- Market disruption – lost revenues
- Who to pay for Cost of change
- Technological challenges

♣ Customers/Users

- Human resistance to change
- Confusion & uncertainty
- Cost, real or imagined

3.2.6 *Number Change: Implementation Guidelines*

In order to address the Stakeholders' worries:

♣ The Basics of effective Communications Number Change implementation include the following activities:

- ♣ *Indicative Costs (operators & customers)*
- ♣ *Customer Information and support*
- ♣ *Consistent & common explanation*
  - *(reasons, roles and detail)*
- ♣ *Raising & monitoring customer awareness*

3.2.7 *Number Change:* *Implementation Guidelines ...*

♣ Other aspects that have to be considered include:

- *Technical co-ordination*

- *Parallel Running*

- *Trapping incorrect calls by for example recorded announcements, etc.*

- *Honesty through extending full Cooperation rather than Collusion or Cartels.*

3.2.8 The Major Challenges: *Number Changes* - SUMMARY

Number Change is a Challenge; Therefore:

♣ Any change in Communications Numbering Plan could cause significant impacts to the network architecture, call processing and the support systems that are required to accommodate the new numbering and dialling plans;

♣ Consideration should be given that, the users of any service are not unduly and adversely impacted by changes to that service.

♣ The Change(s) need to be communicated to ITU-T in accordance with a standardized method for presenting E.164 numbers in the national numbering plans of all countries specified in ITU-T Recommendation E.129. ITU-T Rec. E. 129 also includes a method by which the information is made available to all interested parties, as well as timely information on numbering plan changes that influence the routing, charging and accounting of international telecommunications traffic.

3.3 The Major Challenges: *Convergence Issues*

3.3.1 *What do we mean by Convergence?*

♣ In Telecommunications, **Technological convergence** means: .... the tendency for different *technological* systems to evolve towards performing similar tasks.

Convergence can refer to previously separate *technologies* such as voice (and telephony features), data (and productivity applications) and video that now share resources and interact with each other, *synergistically* creating new efficiencies.

Convergence in this instance is defined as the interlinking of computing and other information technologies, media content and communication networks that have arisen as the result of the evolution and popularisation of the Internet as well as the activities, products and services that have emerged in the digital media space.

The Major Challenges: *Convergence Issues ......*

♣ On the other hand, **Network convergence** is the efficient coexistence of telephone, video and data communication within a single network. The use of multiple communication modes in a single network offers convenience and flexibility not possible with separate infrastructures. Network convergence is also called media convergence.

♣ The Problems:

People have multiple Telephone Numbers and Internet service Addresses!
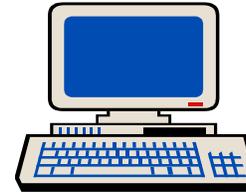
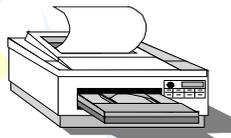# Good……………………Credible ………….. But terrible!

Cable TV

Email

Home Office

Internet Protocol

Session Initiation Protocol

Voice Mail

Home Page

Screen Name
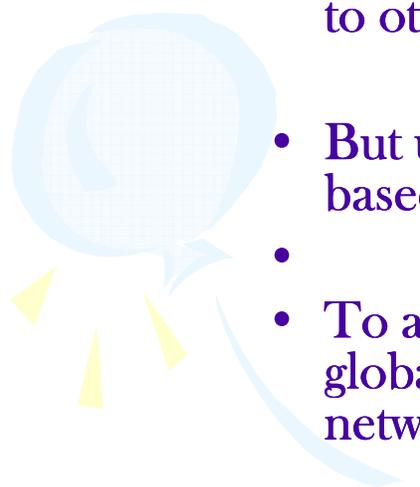
Printer

Fax

Cell Phone

PDA

Pager

Problems of addressing calls.........

♣ Problems of addressing calls that pass from one network service to another:

- Now widely possible to originate calls from **IP** address-based networks to other networks

- But uncommon to terminate calls from other networks to **IP** address-based networks

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- To access a subscriber on an **IP** address-based network, some sort of global addressing scheme across **PSTN** and **IP** address-based networks is needed

♣ ENUM may be a solution...?

3.3 The Major Challenges: *M2M Communication*

♣ **The Machine-to-Machine (M2M)** in this case is defined as communication between machines or automated systems without human intervention

♣ In the near future, it is very likely that the use of **M2M** communication will grow significantly

♣ This growth will most likely take place in various different applications that will require **M2M** communication, and it is expected that many of such applications will be large in scale

– *For example, an application such as Smart Energy Metering or eCall*

The Machine-to-Machine (M2M) ....

♣ The **M2M** applications such as *eCall* and *Smart Metering* that are now being developed will in most cases use **GSM/GPRS** or **UMTS** connections. These connections will have to be separately identifiable, thus making it necessary that some sort of number has to be used as identifier.

  – *For the mid-term, use of numbers from E.164 is likely to be the most effective numbering scheme since it would allow mobile operators to keep using equipment that is already available.*

♣ Utilising mobile networks implies that E.212 numbering resources have to be used for **M2M** applications. Using these numbers will require **SIM** cards to be installed in all **M2M** devices, which will give the **M2M** devices access to the network of a mobile provider with which the **M2M** operator has a contract.

3.5 Future Numbering Plans – ITU Initiatives

3.5.1 Discussion Fora

♣ A **workshop** is being organised by ITU-T SG2 on 08th November 2010 in **Geneva**, as part of its work on the Future of Numbering, for implementing WTSA-08 Resolution 60 (Johannesburg, 2008) dealing with the numbering evolution issues related to NGN and the Future Networks.

♣ **The Theme** of the workshop is to focus on the impact of emerging technologies in the field of numbering, naming, addressing and identification, including the Challenges on the Evolution of the Numbering System and its Convergence with IP based Systems/Networks ;

♣ The **Audience** will include:

– Participants in all ITU-T Study Groups working on the topics of NGN and NNA&I, including Future Network and any other related activities.

– People from other entities working on these topics outside ITU-T

– Others, such as scholars being interested in this topic.

ITU Initiatives – Discussion Fora.........

♣ There will be a **Session** on Need for Future of Numbering (FoN). This will deal with the following questions:

- Why do we need to think about the future of numbering?
    - Does future of numbering mean a new numbering plan?
- What is wrong with existing numbering plans? Exhaustion? New technologies to which the existing plans do not fit anymore? What are these new technologies and why do not existing plans fit anymore? What are the cost benefits that can motivate a change in numbering plans with the advent of any of these new technologies?

ITU Initiatives – Discussion Fora.........

Session on FoN ....Questions ....

- What kind of requirements should be placed for future numbering plans? Is it any perspective or in the horizon of a killer technology that deserves to stop thinking that numbering is neutral regarding the technology? If numbering will not be neutral with technology what will be the impact for interconnection and interoperability of networks, nationally and internationally.

ITU Initiatives – Discussion Fora.........

♣ There will be another **Session** on **Market player's View** , which will attempt to answer for the following questions:

- Do the market players have concrete plans for future networks and the numbering plans in them? What are these plans (highlights)?

- How do terminal equipment manufacturers see the future networks and numbering/ naming/ addressing within them?

- Do the future networks/future of numbering place new requirements or knowledge for the end-users? Are future networks only for nerds?

# ITU Initiatives – Discussion Fora.........

♣ There will be another Session to explore on Administrations' View and attempt to answer to the following questions:

- Does future of numbering mean killing the existing numbering plans and creation of a new one?
- What kind of administrative and management requirements shall be placed for numbering plans also in the future (e.g. portability, nomadicity, legal intercept, interoperability)?
- Will the existing administrative models fit also for future numbering plans? Will the competition legislation take over of the telecommunication legislation? Will future numbering plans have an economical impact? Will administration of numbering be needed anymore?

ITU Initiatives – Discussion Fora.........

Session on Administrations' View .... Questions ....
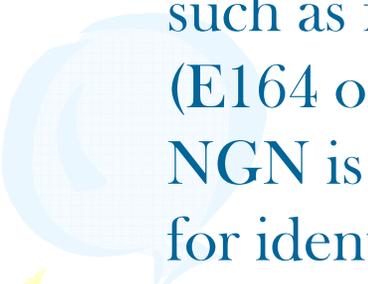
- **M2M** deployments in many national /international level projects such as for smart grid/ smart metering may require numbering (E164 or E212) scheme to be advanced. **M2M** deployment in **NGN** is in the billions on machines that may require a resource for identification which may impact both E164 and E212 resources management. What would be the administrations' issues on it?

- Numbering issues like **CLI** will be considered as well

- Interrelation between numbering and economical issues e.g. settlement and accounting rates, basis for allocation fees

Future Numbering Plans: ITU Initiatives ....

3.5.2 ENUM

Could be an important integrator of telephony network, Internet, other IP-based networks

Acknowledgements

The presenter hereby recognizes and acknowledges the work of :

InterConnect Communications of The United Kingdom

www.icc-uk.com

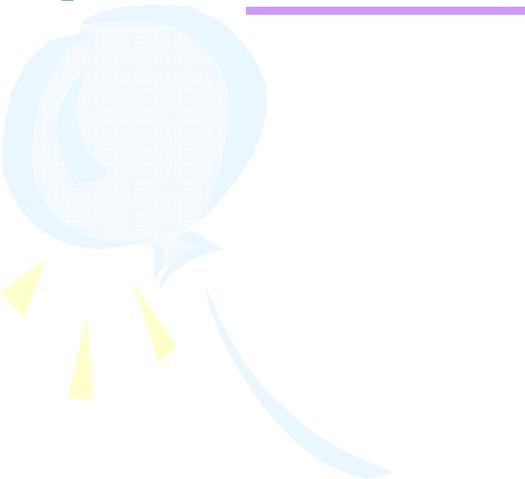*And, appreciates the usefulness of the material contained in:*

www.itu.int

4.0 E-Contact

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