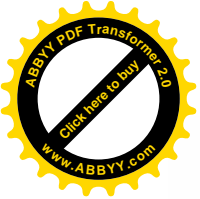


Key drivers for LTE success: Services Evolution

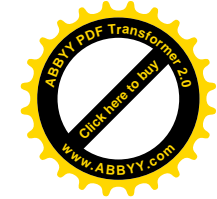
Balazs Bertenyi
Chairman of 3GPP TSG SA











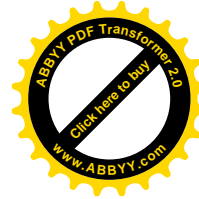
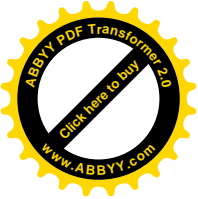
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Outline



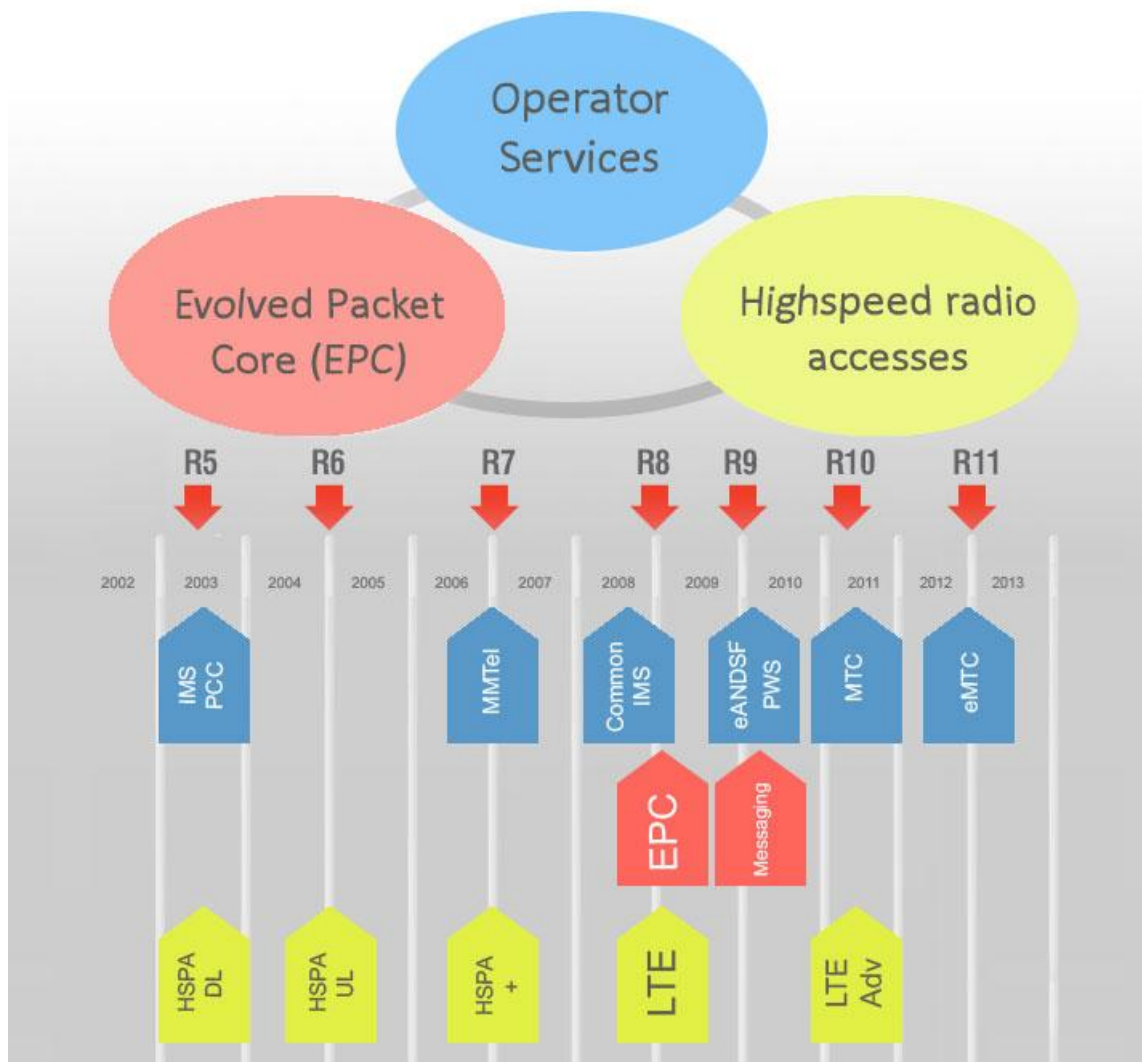
-  Overall 3GPP work areas
-  IMS – the service platform for operators
 - Multimedia Telephony (MMTel)
-  Policy Control evolution (PCC)
-  Access discovery and selection (ANDSF)
-  Machine Type Communications (MTC)
-  Regulatory features (disaster warning, emergency calls, priority service)
 - Public Warning System (PWS)
 - Priority Services

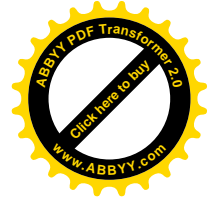
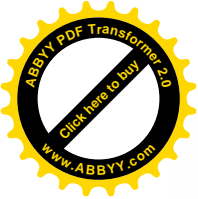




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Overall 3GPP work areas





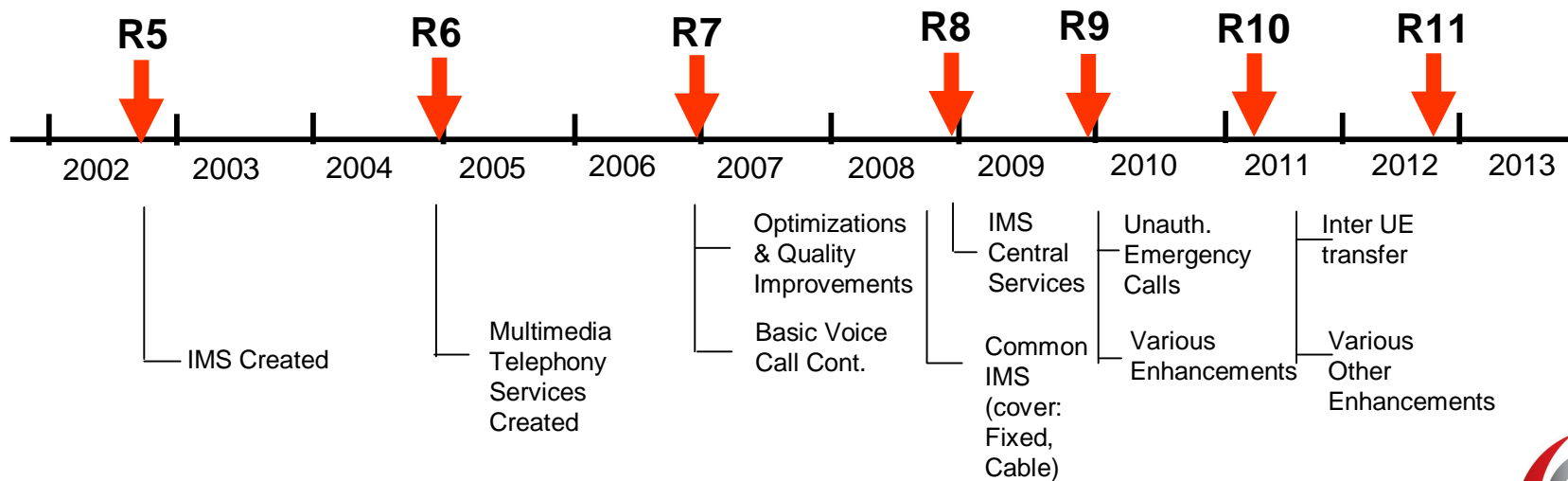
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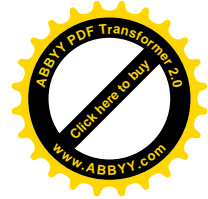
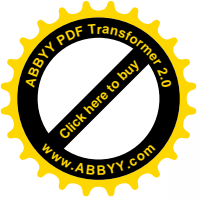
IMS and its evolution (1/2)



 Basic IP Multimedia standards have been available since 2003

- Gradual addition of functions has created a carrier grade service platform





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IMS and its evolution (2/2)



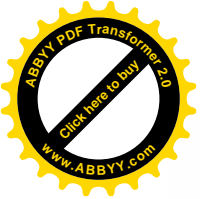
Work still ongoing on operational-related aspects

- Jointly with the GSM Association on aspects of interconnect, roaming and charging
- Local Breakout is utilized for connecting IMS media
 - Optimized media path is important to reduce cost
- Legacy Charging Accounting and Interconnect principles should be re-used

Location requirements being addressed

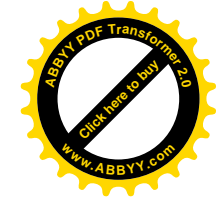
- Authorities in many countries require network-authenticated location information stored for certain sessions (e.g. for court cases)
- Standards are being developed to address this





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SMS and Messaging over LTE



- LTE is packet only and hence does not natively support legacy SMS
 - IMS based messaging may not be available at initial LTE deployments
- ➔ Standards were developed to deliver legacy SMS over LTE
- A device that is attached both to LTE and 2G/3G can send and receive legacy SMS over the legacy CS core network
 - Enhancements to the necessary interfaces were defined to pass SMS between legacy CS core and EPC/LTE



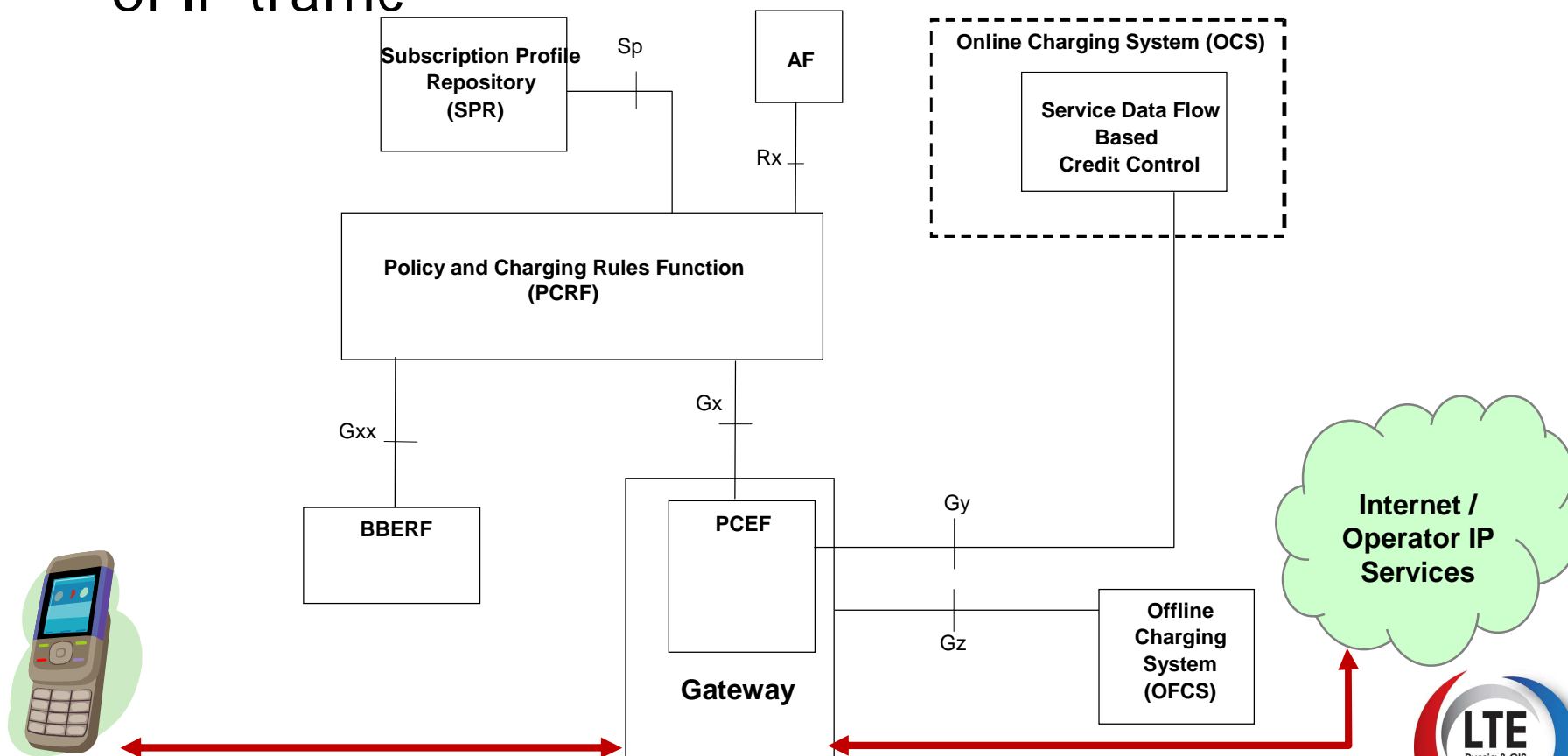


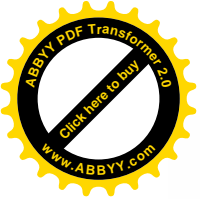
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Policy Control (PCC)



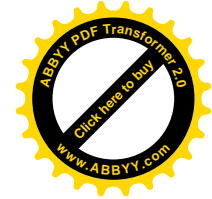
 The PCC framework allows QoS and Charging control of IP traffic





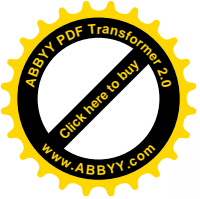
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PCC evolution



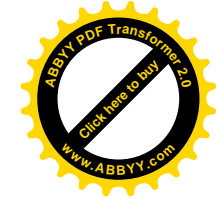
- 📶 The PCC framework has been further enhanced to give operators an even wider range of control tools
- 📶 Support for sponsored data connectivity has been added
- 📶 Service awareness, deeper lookup of packets is also supported
- 📶 Handling of privacy policies has been standardized








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Access Discovery and Selection (ANDSF)



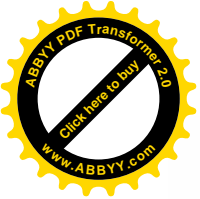
-  EPC is a multi-access IP core system supporting both native 3GPP cellular radio technologies and other IP access systems (802.x, etc...)

-  Legacy selection mechanisms have been available to choose a 3GPP cellular radio and PLMN

-  Additional standards were developed to take into account non-3GPP access technologies
 - Access technology policies are uploaded to the device using Device Management procedures

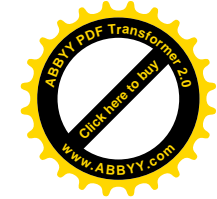
-  Further work ongoing to fine-tune the granularity of the policies







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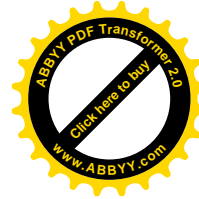
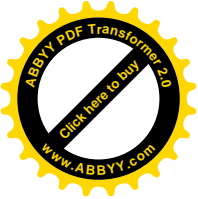
Machine Type Communications (MTC)



-  M2M is recognized as a key segment in future packet networks

-  Initial 3GPP efforts have focused on the ability to differentiate machine-type devices
 - This allows the operator to selectively handle such devices in overload situations
 - Low priority indicator has been added to the relevant UE-network procedures
 - Overload and Congestion control is done on both core network and radio access network based on this indicator



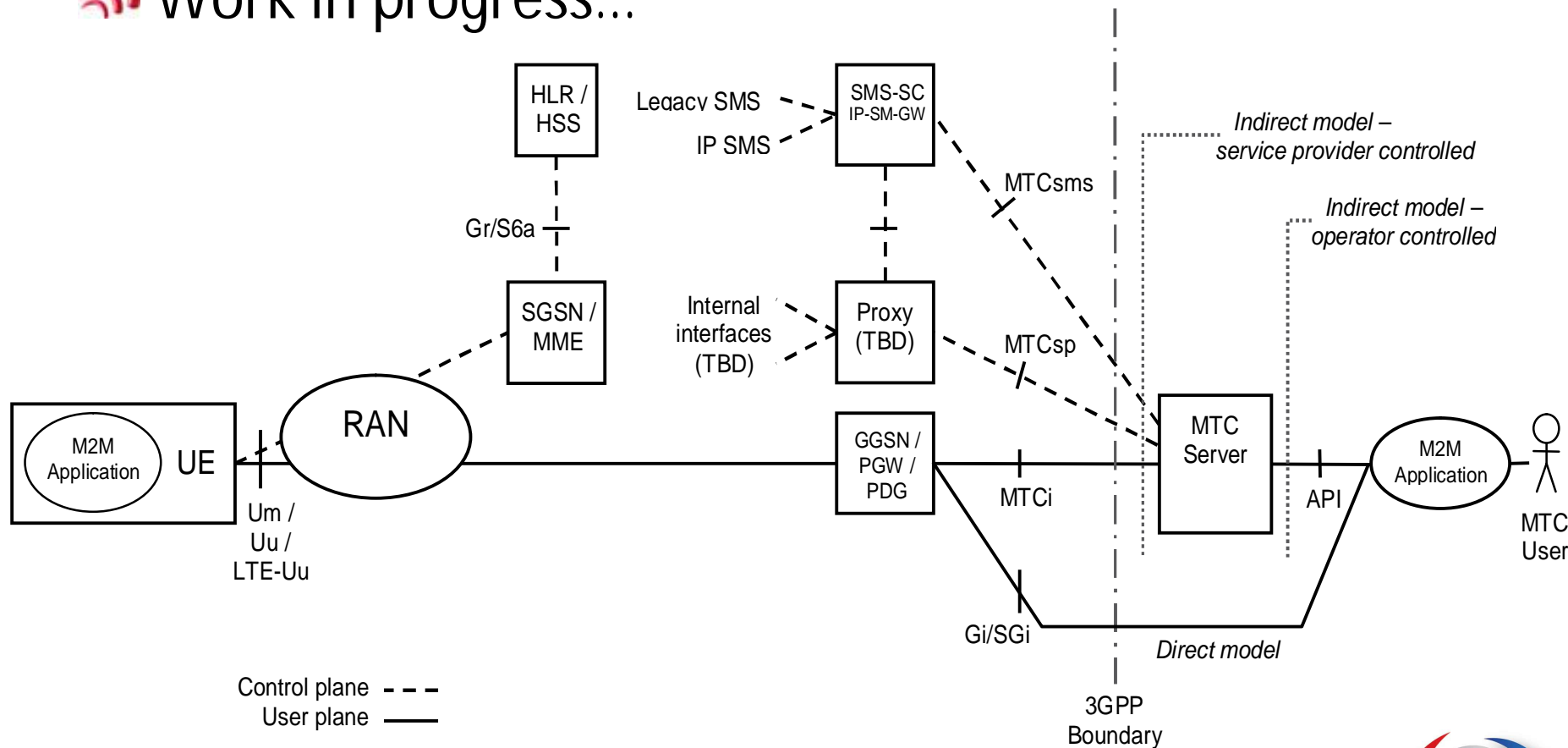


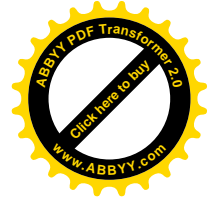
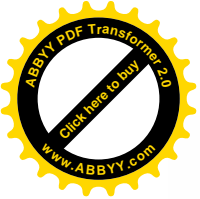
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MTC – basic architecture



Work in progress...






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Evolution of MTC

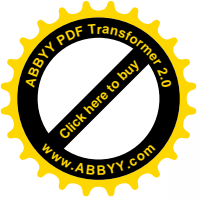


 Further functionality being added to 3GPP standards in the following areas

- Reachability Aspects, MTC Feature control, Device Triggering
- Addressing, Identifiers - especially removal of MSISDN dependencies in the architecture
- Signaling Optimizations
- Small Data Transmissions
- MTC Monitoring
-

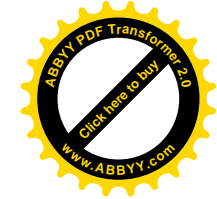
 MTC is a substantial technical area, full completion will span across multiple future Releases





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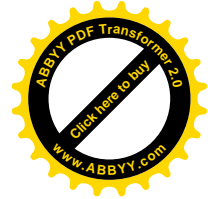
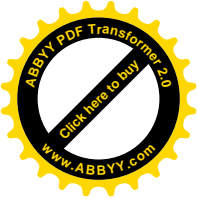
Regulatory features – disaster response



 Recent events have brought the different disaster response functions of the 3G/4G networks to the forefront

- Public Warning System (PWS) provides a secure framework for delivering Warning Messages to the devices
 - The Japanese version of this system saved thousands of lives in the recent earthquake/tsunami disaster
- Priority Services
 - Mechanisms have been standardized to allow priority access to the network services (voice calls, Internet, multimedia calls, etc...) for e.g. government officials in the event of a mass disaster





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Thank You



Balazs Bertenyi

3GPP TSG SA chairman
+36 20 9849152
balazs.bertenyi@nsn.com

More Information about 3GPP:



www.3gpp.org
contact@3gpp.org

