



# International Telecommunication Union



Ministry of information technologies and communications of the Russian Federation



Central Research Telecommunication Institute of the Russian Federation

## The experience of NGN technical means testing at the Model network

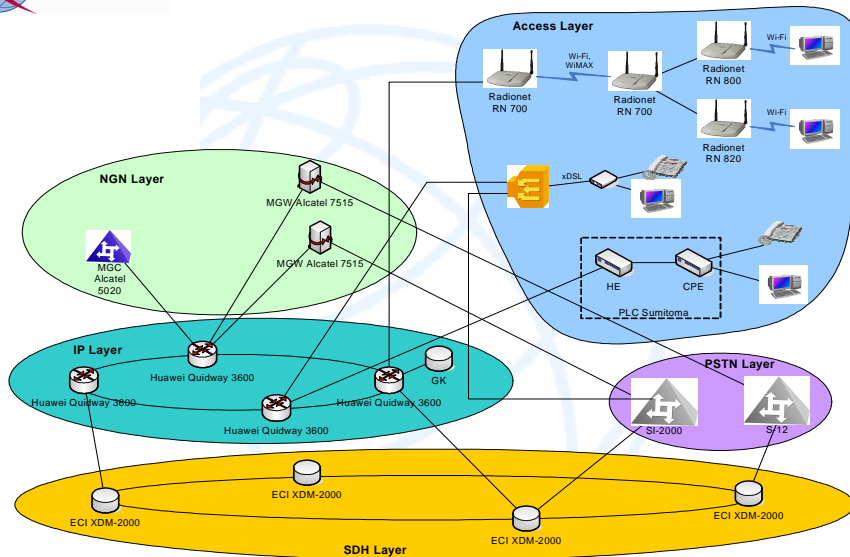
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*ITU-D/ITU-T Seminar on Standardization and Development of Next-Generation Networks for the Arab Region*

Manama (Bahrain) 29 April - 3 May 2007



## TechnoPark Model network



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## Main Project

Name: “Testing of SoftSwitch technology”

Customer: JSC SvyazInvest, Russia

Purpose:

*Determination of an opportunity of use SoftSwitch technologies for development of existing telecommunication networks of the Russian Federation, and determination of the optimal scopes of the equipment.*

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## Project participants

- o Alcatel
- o Siemens
- o Huawei
- o Ericsson
- o Lucent
- o Nortel
- o Marconi
- o Mera Networks
- o Cisco Systems
- o Sentito
- o ZTE
- o ECI Telecom
- o Italtel
- o Iskratel
- o Tekelec

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## Test cases implemented in project

### TechnoPark area

- ✓ *Compatibility of SoftSwitch equipment with PSTN and among themselves*
- ✓ *Compatibility of SoftSwitch equipment with service platforms and application servers*
- ✓ *Lawful Intercept*
- ✓ *Emergency call*
- ✓ *Safety providing*
- ✓ *Subsystem of counting of the volume of the rendered services*

### Network trial\*

- ✓ *Tests at a high load*
- ✓ *Estimation of dependence of SoftSwitch network solutions from features of transport networks*
- ✓ *Tests considering specific requirements of various operators JSC "SvyazInvest"*

*\* - all tests are carried out by TechnoPark engineers*

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## Separation into phases

- ✓ *Phase 1 – Estimation of an opportunity of use SoftSwitch technology for updating an existing telephone network and determination of effective scopes of the SoftSwitch equipment*
- ✓ *Phase 2 – Compatibility estimation of network fragments based on the SoftSwitch equipment among themselves over IP. Estimation of an opportunity of use SoftSwitch technology for updating an intellectual network. The possibility to maintain the existing services on the new equipment*
- ✓ *Phase 3 – Testing of Lawful Intercept functionality, safety and access to the emergency services*

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## Protocols & Functions testing (Phase 1)

### PSTN protocols and interfaces

- ✓ ISUP-R
- ✓ ISDN BRI/PRI
- ✓ V5.2
- ✓ MTP2
- ✓ MTP3

### Functional tests

- ✓ Subsystem of cost accounting
- ✓ Modems connection
- ✓ Faxes connection

### IP-based protocols

- ✓ M2UA
- ✓ M3UA
- ✓ IUA
- ✓ V5UA
- ✓ MGCP
- ✓ MEGACO
- ✓ H.323
- ✓ SIP
- ✓ SIP-T
- ✓ BICC

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## Protocols & Functions testing (Phase 2)

### Interworking interfaces with service platforms

- ✓ INAP
- ✓ INAP-R
- ✓ Parlay
- ✓ VoiceXML

### Functional tests of Line Features

- ✓ For analog phones
- ✓ For SIP-phones
- ✓ For MGCP-phones
- ✓ For IP-phones

### Functional tests

- ✓ Subsystem of cost accounting

### New services

- ✓ LNP
- ✓ VPN

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## Summary

*Technopark Experience*



*Set of recommendations:  
(Q.tt1, Q.tt3, Q.tt4, Q.tt5, Q.tt6)*

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## Q.tt3 “DISTRIBUTION OF TESTS AND SERVICES FOR NGN TECHNICAL MEANS TESTING IN MODEL AND OPERATOR NETWORKS“

### Goal

**The proposed draft Recommendation Q.tt3 will make it possible to define a list of checks to be performed during the testing of NGN (EUT, NUT and services) in a model and operator networks.**

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## Terminology

**Model network** — a network which simulates the capabilities similar to those available in present telecommunication networks, has a similar architecture and functionality and uses the same telecommunication technical means

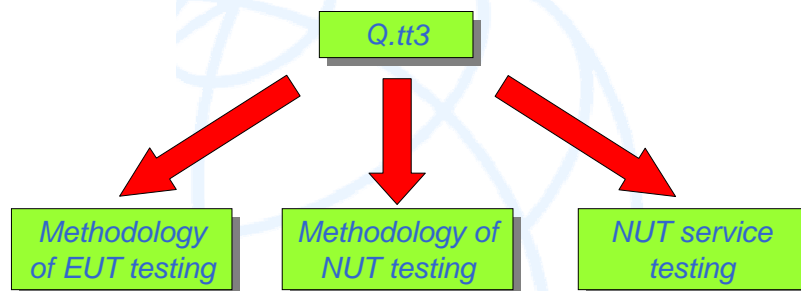
**NGN Technical means** — the NGN basic equipment which serves as a basis for building New Generation Network solutions, including for application in public telecommunication networks\*

\* Recommendation of ITU-T Q.3900 "Methods of testing and model network architecture for NGN technical means testing as applied to public telecommunication networks"

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## Structure of document



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## Methodology of EUT testing

EUT functionality testing

Function under test	Test description
Access transport functions	Test №1
	Test №2
	...
RASf	Test №1
	Test №2
	...
NASf	Test №1
	Test №2
	...
...	...

EUT Load&Stress testing

List of test
Test №1
Test №2
...

EUT conformance testing

Protocol	Reference to protocol test profile
SIP	ETSI TS 102 027
SCTP	ETSI TS 102 369
M3UA	ETSI TS 102 381
...	...

Compatibility testing of tested EUT with EUT of other manufacturers

List of scenarios
MGC-MGC
MGC-MG
...

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## Methodology of NUT testing

NUT functionality testing

Basic solution	Test description
STP	Test №1
	Test №2
	...
SP	Test №1
	Test №2
	...
SCP	Test №1
	Test №2
	...
...	...

NUT interconnect testing

NUT end-to-end testing

NUT quality of service testing

NUT mobility and roaming testing

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**Thank you for your attention**



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