Testing experience of ITTC for CIS Regions

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Technopark NGN testing experience

Testing of Softswitch equipment for the biggest national operator JSC “Svyazinvest”

‘Field testing’ of NGN protocols for regional operators (JSC “Volgatelekom”, JSC “Uralsvyazinform”, etc.)

Remote testing of NGN equipment for compatibility/interop (Alcatel – Iskratel – JSC “Sakhatelekom”, etc.)

Retrieval a lot of experience in NGN testing and high-qualified specialists

Creation of powerful Model network for different types of testing
Preparation of ITTC project 1/2

Creation of Model network in ZNIIS for interoperability testing
Moscow, 2003
Lunch of the project for JSC “Svyazinvest” on NGN equipment testing
Moscow, 2004

Creation in ITU-T of the new question Q.8 «Testing of NGN protocols»
WTSA Brazil, 2004
Lunch of the Q.39xx Recommendations series in the scope of Q.8 SG11
ITU-T on testing of NGN technical means
Switzerland, 2004

Termination of the JSC “Svyazinvest” project on NGN interoperability testing for 15 leading vendors
Moscow, 2004-2005

Regional preparation meeting RCC. Approved initiative of Russia on creation of International centre for RCC contribution on WTDC-06 (Doha, Qatar) Moscow, October 2005

Resolution 17 WTDC, approving RCC contribution on creation of International centers of introduction and testing new technologies Doha, March 2006

RCC operators Council. Presentation of ZNIIS on principles of creation and functioning of International centers.
Moscow, March 2006
Preparation of ITTC project 2/2

Speech on seminars ITU-D/ITU-T on thematic of testing on Model networks
ITU-ATIS specialists forum USA, March 2006
African region forum Tanzania, October 2006
ITU-ETSI specialists forum Switzerland, December 2006
Arabian region forum Bahrain, May 2007

ETSIZNIIS joint project on testing.
10 vendors. Moscow, April 2007

Recommendations:
Q.3900 (in force, 2006)
Q.3901 (in force, 2007)
Q.3902 (in force, 2007)
Q.3903 (in force, 2008)
Q.3904 (in force, 2010)

ITU Project «International Telecommunication Testing Centre»
Switzerland, November 2007
Approved in project department of ITU-D
ITTC project

Project Title: International Telecommunication Union – Central Science Research Telecommunication Institute International Telecommunication Testing Centre

Shot project name: ITTC ITU-ZNIIS

Start data: January 2008

Deadline: June 2011

Government agencies, attracted to work: Administration and the Ministry of Communications

Agency implementing the project: International Telecommunication Union

Project location: ITU Regional Representative Office in Moscow

Countries in whose favor a project: CIS and other developing countries
In this project, the **ITU** and **ZNIIS** start to cooperate for creation of the **International Telecommunication Testing Centre (ITTC)**, operating in an environment of new technologies, and training for professionals from developing countries in the field of telecommunications. Methodical testing of next-generation networks (NGNs), in particular, planning realized in ITTC through the creation of a model network, through which enables simulation of various network parameters and use a variety of manufacturers’ equipments. The results of these tests will be documented and disseminated.

This project is developed in strict accordance with the recommendations of the 2006 Qatar World Telecommunication Development Conference (WTDC), establishing the International Centre for NGN Testing.
The project purpose

- Education to test and introduce new technologies for RCC and the developing countries specialists (2 workshops, 3 methodical course of training)

- Methodical equipment testing on a model network for RCC and developing countries
Expected results

- Knowledge DataBase in according with of Q.3903 ITU-T recommendation
- Testing manuals
- Methodology for NGN testing
- New technologies introduction examples on the operators network
- Results archive of technology and communication services testing
ZNIIS projects statistics 1/3

Tested solutions:
- Softswitch
- Fixed/Wireless Broadband access
- IMS
- DWDM
- PON
- IP/MPLS
- IPTV
ZNIIS projects statistics 2/3

- Alcatel
- Siemens
- Huawei
- Ericsson
- Lucent
- Nortel
- Marconi
- Mera Networks
- Cisco Systems
- Sentito
- ZTE
- ECI Telecom
- Italtel
- Iskratel
- Tekelec
- MFI Soft
- Informtechnika
- NEC Neva
- Sitronics
- Nateks
- ALSiTek
- Eltex
- ZyXel
ZNIIS projects statistics 3/3

Amount of tests performed - 6973

- Amount of successful tests - 6657
- Amount of problems - 316

Overall amount of problems - 316

- Amount of repaired problems - 141
- Amount of unsolved problems - 175
The typical problems detected during protocol testing (2)

1. The test of AG gateways interworking has revealed a non-conformance of Via field value in BYE request to the value which was earlier transmitted in the INVITE request. Gateways controller transmits surplus symbol ‘<=’, which is absent in INVITE request;

2. During call ring off up to reply of a called subscriber the UA sends ACK message with incorrect parameter c CSeq, method=INVITE (while it should be method=ACK)

3. The To field value in BYE request differs from the value transmitted in the final reply (another port is indicated)

4. Some others.
The typical problems detected during protocol testing (2)

1. The MGC software employs the mode of sending several instructions in one transaction of protocol H.248. The MG software supports the receive mode for only one instruction in one transaction of protocol H.248. As a result, not all of the instructions received by MG are executed and correct interoperability is impossible;

2. After the receiver is taken on the terminal connected to the communication facility (access gateway) the gateway in reply to the Modify message transmits a message with the error code 519 Out of space to store digit map (insufficient storage for saving the numbering plan). In this case, it is impossible to transmit the number digits when the terminal is operated in pulse mode.

3. In reply to the AuditValue instruction requesting the information as per identification of ports being in the zero context the error message is received. This occurs during sequential transmission of several AuditValue instructions

4. Some others
Current results (1)

- International training seminar on the system-network solutions testing with the participation of specialists in 10 RCC countries and Europe professionals (November 2008)

- The test methodologies for system-network solutions testing (Softswitch, IMS, Wireline Broad Band Access) (March 2009)

- Functionality and interconnection testing of system-network solutions of different vendors, installed on a model network (test results in agreement with the vendors will be provided in the ITU, in a centralized ITU database). Conducted a training course to the principles of NGN testing (June 2009)

- International training seminar "Testing for compliance with international standards" with the participation of specialists in 10 RCC countries, the ITU administration, ITU-T developers and experts from leading European operators (DT, AT). Designed and launched the first version of the Knowledge Base. At the moment Knowledge Base is filled (November 2009)
Current results (2)

- Testing QoS parameters for different network solutions and equipment from different vendors (December 2010 – March 2011)

- International training seminar “Approaches on network performance parameters testing to ensure services quality” (March 2011)

Current results (3)

Handbook of Testing will be send to consent procedure in October ITU-T SG11 meeting

Handbook “Network performance testing and control for guarantee required QoS for NGN services” was presented in October ITU-T SG11 meeting

LNCS 6869 “Limited Values of Network Performance and Network Productivity Estimation Approach for Services with Required QoS. Service Benchmarking”
Planning events

- Final version of the Knowledge Data Base in accordance with the existing ITU-T recommendation Q.3903 (July 2011)
- International Workshop on the ITTC activity results under CIS-08 project (July 2011)
The common directions of the ITTC development

- Development of recommendations on telecommunications development strategy with national strategies for RCC operators networks
- Develop standards for system-network solutions, protocols and services for operators of RCC operators networks
- Develop recommendations to ensure quality of service and principles of formation of service level agreements on RCC operators networks
- Research of NGN Information Security for RCC operators
Main ITTC activities

- Joint research
- Provision of model network and knowledge base resources for testing
- Development of analytical reports
- Organization of seminars
- Development of contribution, generalizing and systematizing ITTC experience
- Testing for compliance with standards
- Realized of projects on issues of equipment interoperability
- Assistance in the formation of technical policy
- Accompanying the introduction of new technologies
- Development of basic requirements for equipment
- Development of Service Level Agreement
- Works on adapting equipment
- Consultations on the issue of terms of use of equipment
- Analysis and recommendations on the interaction of equipment from different manufacturers
Conclusion

Reducing of digital gap by sharing experience of introduction and maintenance of new technologies, implemented on the operators networks from developed countries, on the worldwide telecommunication market.

Using ITTC as the effective mean of gathering experience and consolidation of high-level specialists and experts in the field of introductions, testing, standardization and maintenance of new telecommunication technologies.

Performance of regional initiatives and private initiative projects for network operators in part of development qualifying standards, which determine entire approaches and rules in part of introduction of new technologies on the operator networks.
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