Automatic Monitoring & Detection System For Grey Traffic

Quarter	Milestones	Deliverables	Status
1st (Jul 13 – Sep 13)	1. Network lab setup and Equipment Purchase 2. Detailed Description of roles of individual project team member. 3. Requirements and objective finalization. 4. Project plan finalization. 5. Finalization of Hardware System architecture design and specification. 6. Finalization of Software Development Plan including algorithm selection and short-listing of each functional module. 7. Selection of Telco's site for Data collection 8. Establishment of Network linkage between Telco's site and Network Laboratory.	1. AMDS Requirements and specification Document 2. Hardware System Architecture Design specification Document 3. Software system architecture design specification Document. 4. Equipment/hardware procurement list, containing purchase details 5. Final Network route diagram	Submitted
Quarterly Progress Report: The above deliverables have been reviewed by Project Manager and found satisfactory. The system architecture design documents (both hardware & software) are in accordance with the approved proposal. Final Network Route Diagram which depicts overall system development and deployment scenario has been developed.			
Quarter	**Milestones**	**Deliverables**	**Status**
2nd (Oct 13 – Dec 13)	1. Procurement of the system hardware components	1. Final Algorithmic design document 2. Software Application	Submitted

	2. Analysis of Hardware Domain 3. Initialization of Software Application development 4. Implementation of software architecture 5. Algorithm development and Optimization for building blocks. 6. Development of software test plan and test 7. environment for software application and algorithms	development document 3. Performance Evaluation and Testing Report of Algorithms 4. Software Test Plan Document	

Quarterly Progress Report:

The above deliverables have been reviewed by Project Manager and found satisfactory. These deliverables are mainly concerned with initialization of application development and algorithm development for building blocks whose purpose is to collect data, analysis it, report in into a meaningful format and then use the results to monitor the traffic.

Quarter	Milestones	Deliverables	Status
3rd (Jan 14 – Mar 14)	1. Hardware architecture and design. 2. Interface with Telco's 3. Installation of procured hardware components 4. Testing of each hardware components 5. Testing of software's and database management system. 6. Development of database management system. 7. Organization and linkage of software	1. Complete network system 2. CDR Database 3. Active probe deployment 4. Processed CDR's 5. Database management system deployment 6. Demonstration	Submitted

	database with storage devices 8. Testing of Backend Probe and acquisition of Signaling CDR (Call Data Records) Acquisition through probe from PIE. 9. Filtering of CDR's (Reconciliation and mediation development) 10. Signaling Data Parameters Analysis		

Quarterly Progress Report:

The above deliverables have been reviewed by Project Manager and found satisfactory. The CDR database has been developed based upon record of 50,000 calls. These CDRs were quantified based upon Call Velocity method and bad CDRs were categorized with various parameters. A demonstration of the CDR database was also provided.

In a meeting with Project Team it was agreed to include the latest protocols in system other than SIP and H.323. Whereas, the mediation techniques would also be improved from time to time.

Quarter	Milestones	Deliverables	Status
4th (Apr 14 – Jun 14)	1. Hardware Implementation 2. Application Development (KPI Engine) 3. Differentiating/Detecting different type of Traffic using developed algorithms and software. 4. Software Design Document featuring detailed design structure and parameters of application software. 5. Optimization and	1. Software Application development document 2. Application software (KPI engine) 3. Software Design Document 4. Report describing complete development plan of the project 5. Initial software package release. 6. Initial Training on Software/Feedbacks 7. Demonstration	Submitted

	testing of software modules. 6. System network analysis 7. Development of hardware model and testing environment for software application. 8. Integration of software and hardware components 9. Evaluation of Developed model in the light of project Design Objectives		

Quarterly Progress Report:

The above deliverables which were due in July 2014 were received on 12th August 2014. The application has been developed and tested in passive probe mode. Because hardware is just being procured, active probe testing would now be possible that PIO has planned in October 2014.

Quarter	Milestones	Deliverables	Status
th 5 (Jul 14 – Sep 14)	1. AMDS prototype setting, database loading and interface testing 2. Testing a proto-type model for off-line Signaling Data 3. Implementing /Testing the AMDS on Real Time Data on PIE. 4. Integrated test plan for system testing 5. Completion of Integration testing and its report 6. Re-evaluation and design freezing	1. Initial functional AMDS final release 2. AMDS integrated architecture design document 3. Testing Report 4. Journal publication 5. Demonstration 6. Training/ Workshop	Submitted

	7. Integrated system architecture design documentation		

Quarterly Progress Report:

The above deliverables were submitted after a delay of two months on 3rd December 2014. It is found that real time testing of developed application (AMDS) has yet not been performed. It is also found that developed application is not capable to be tested on high bandwidth rate i.e. 220 GB/Second at PIE because of legacy hardware. However, the PI has suggested that real time application testing (active probe) would be performed at 10 GB/Second chunks present at Islamabad PTCL.

During the monitoring visit on 17th September 2014 at project site, a demo was provided by PI of developed application. It was found that the developed application can cater multiple protocols, around 250 in total & multiple ports for IPDR & CDR including SIP & H.323. A separate console has been developed as part of the application to detect & cater latest protocols. The mediation was demonstrated for IPDRs over passive probe. Later, the normalization & consolidation behavior of mediation was also demonstrated.

Quarter	Milestones	Deliverables	Status
6th (Oct 14 – Dec 14)	1. Performance evaluation of integrated system on standard databases. 2. Completion of Fully functional AMDS for Grey traffic. 3. User Manual explaining the AMDS user interface 4. Installer Guide 5. Developers Guide explaining script/APIs provided by the AMDS framework for application developers 6. Final Release and Release Document.	1. Performance Evaluation Report 2. Installer Guide 3. User manual explaining the AMDS user interface 4. Developer's guide 5. Final software release package 6. Final functional AMDS final release 7. Final Training / Workshop 8. Journal publication	Submitted and found to be satisfactory by the MPE's Technical Closure Report.

Quarterly Progress Report:

The project was ending on 31st December 2014 but an extension of three months in under review. There have already been delays in active probe testing & insufficient data acquisition under legal framework.

On 12th December 2014, a demonstration of developed application was given and it was found that application is not capable to be tested on real time at 220 GB/Second of bandwidth. However, the PI confirmed that application testing (active probe) on real time can be performed at 10 GB/Second of bandwidth. The developed application has a separate console to capture new protocols & suspicious IPs. However, at present the developed application can cater only 300 protocols because of insufficient data.