Megaco/H.248 Protocol Implementation

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Agenda

• Introduction
• Project Plan & Requirements
• Call flows
• Implementation in OPNET: Network Model & Node Model
• Implementation in OPNET: Custom Real Time Protocol (RTP)
• Implementation in OPNET: Media Gateway Control (MGC)
• Implementation in OPNET: Media Gateway (MG)
• Project Status & Expected Results
• References
• Q & A
Introduction

- Problem in Reality
- Solution: Media Gateway Control Protocol
- A brand NEW area
  - IETF
  - ITU-T
  - TIA/EIA
- Who are involved?
  - Cisco, Nortel, Lucent
  - Motorola, Microsoft

Master/slave Architecture
Project Plan & Requirements
(http://www.sfu.ca/~vswu/courses/CMPT885/project.htm)

• Project Plan (Project is Repeatable & Controlled)
  – Version 1.1 (5 of 8 commands in 3 simulation scenarios)
  – Three main components: MG (IP Phone), MGC, Custom RTP

• Project Requirements
  – System Requirements
    • System Functional Specification (SFS), Version 1.4
    • SFS of Custom RTP, Version 1.0
    • System Interface Control Document (SICD), Version 1.1
  – Software Requirements
    • Software Functional Specification (SWFS) of MG, Version 1.0
    • SWFS of MGC, Version 1.0
    • SWFS of Custom RTP, Version 1.0
Call flows of three simulation scenarios

**Successful MG Registration Procedure**

**Successful Call Setup Procedure**

**Successful Call Release Procedure**

**Successful Call Setup Procedure**
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Megaco/H.248 Protocol

Media Gateway Controller (MGC)

Media Gateways (MG)

Network Model: Simulation of Megaco/H.248 Protocol
Implementation in OPNET: Node Model

 NODE MODEL
 Application: MGC/MG/RTP

 MGC/MG/RTP
Implementation in OPNET: Custom Real Time Protocol (RTP)

• What is RTP?
  – RTP provides transmission functions for applications transmitting real time data e.g. Audio, video.

• RTP has two kinds of packet formats
  – RTP Packet
  – RTCP Packet

• RTP in our project:
  – transmits voice traffic between two MGs
  – collects statistics
Media Gateway Controller (MGC)

- The architecture of MGC:
Implementation in OPNET: Media Gateway Controller (MGC)

- Software Design Specification (SWDS) of MGC, Version 1.0
- FSM of MGC
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Implementation in OPNET: Media Gateway

- SWDS of MG, Version 1.0

MG Process Model
Project Status

- Completed Tasks
  - MGC Process Model
  - MG Process Model
  - Custom RTP
  - Node Model
  - Network Model
- Remaining Tasks
  - Debugging
  - Collecting Statistics
  - Writing Final Report
- For details, visit http://www.sfu.ca/~vswu/courses/CMPT885/project.htm
Expected Results & Future Work

• Expected Results
  – Packets Received
  – Packets Sent
  – Packets Loss
  – Average Delay

• Future Work
  – Implementation of other three Megaco/H.248 commands
  – Implementation of full featured RTP
  – Multiple call scenarios
References


Thank You!

QUESTION?