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## Monitoring and Measurement Activities in European Projects

# MOME

BroadBand Europe Event, Bruges  
Session 3 - Network Monitoring and Measurement  
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Felix Strohmeier  
Advanced Networking Center  
Salzburg Research Forschungsgesellschaft mbH

# Outline

- | About MOME project
- | MOME Survey
  - | Approach
  - | Results
- | Outlook & Conclusions

## The MOME Project – Some Facts

MOME

- | FP6, IST, Co-ordination Action
- | 1st Call
- | IST-2003-001990
- | Strategic Objective IST-2002-2.3.1.3 "Broadband for all"
- | 24 month (2004-05)
- | 63 person month / 8 partners
- | Budget: € 714.200 / Funding: € 527.880
- | Web-site: <http://www.ist-mome.org>
- | Mailing list: <http://www.ist-mome.org/announcements/>

# Introduction

## What do we mean by IP monitoring & measurement?



### Use cases

- | Traffic Control
- | Traffic Engineering
- | Billing/Accounting
- | Security
- | SLA/SLS Monitoring
- | QoS Measurements
- | Trials & Evaluation

### Measurement Tools

- | active
- | passive

### Measurement Data

- | raw data
- | aggregated data
- | analysed data

### Standards

- | metrics
- | data exchange
- | sampling mechanisms

### Measurement Results

- | traffic/flow statistics
- | alarms/notifications
- | graphs

# Project Objectives

What are MOMEs important tasks?



## Co-ordinate activities in the field of IP monitoring and measurement

### Measurement Tools

- | evaluate & promote interoperability
- | provide information

### Measurement Data

- | select format
- | provide database
- | collect
- | convert
- | disseminate

### Measurement Standardisation

- | identify potential
- | collect plans
- | co-ordinate joint contributions

## Build a knowledge exchange platform

- | Workshops, conferences
- | Dissemination activities

### **MOME does not**

- | Develop new measurement tools
- | Develop new measurement methods
- | Develop new measurement standards

# MOME Events

## Where public MOME activities take place?



- | March 2004
  - | IPS2004 Workshop, Budapest
- | June 2004
  - | MOME Session at TERENA Networking Conference, Rhodes
- | December 2004
  - | MOME session at BroadBand Europe Event, Bruges
- | March 2005
  - | IPS-MoMe 2005 Workshop, Warsaw
- | June 2005
  - | MOME Cluster Event at TERENA Networking Conference
  - | Interoperability Event
- | Summer 2005
  - | Standardisation Event
- | October 2005
  - | open MOME Workshop

# MOME Survey – Overview



- | Collect information about IP monitoring and measurement activities in Europe
  - | IST projects, network operators
- | Three parts
  - | General part
  - | Project information
  - | Tools (if developed by given project or company)
- | Web-based survey tool + oral interviews
  - | <http://www.ist-mome.org/about/questionnaire.html>
- | Goal
  - | Identify needs and activities

# MOME Survey – Topics

## Measurement Approach

- Objectives
- Methods/Algorithms
- Metrics

## Measurement Scenarios

- Timeframe
- Results
- Analyses

## Measurement Tools

- Used well-known tools
- Developing new tools

## Expectations from MOME project

- Expected services
- Provided supply

## Standards/Standardisation Plans

- Used standards
- New standards
- Expected standards

## Measurement environment and role

- Operational network or testbed
- Integrated or support role

# MOME Survey – Current Results



- | Currently 11 projects interviewed

- | FP5

- | Euro6IX

- | GÉANT

- | INTERMON

- | SCAMPI

- | FP6

- | Ambient Networks

- | DAIDALOS

- | ENTHRONE

- | EuQoS

- | EUROLABS

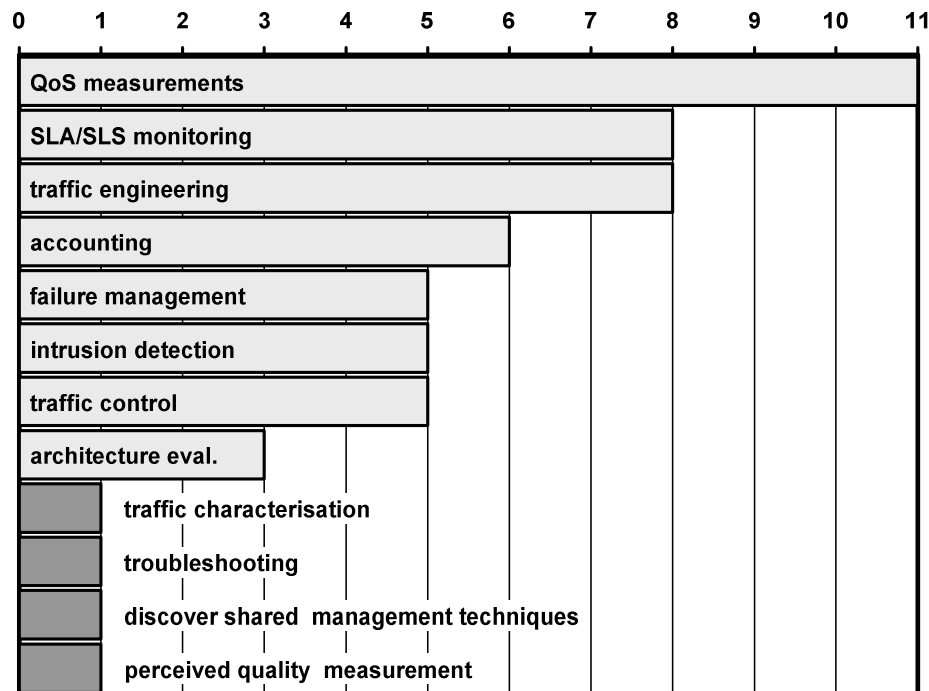
- | EuroNGI

- | LOBSTER

# MOME Survey – Current Results



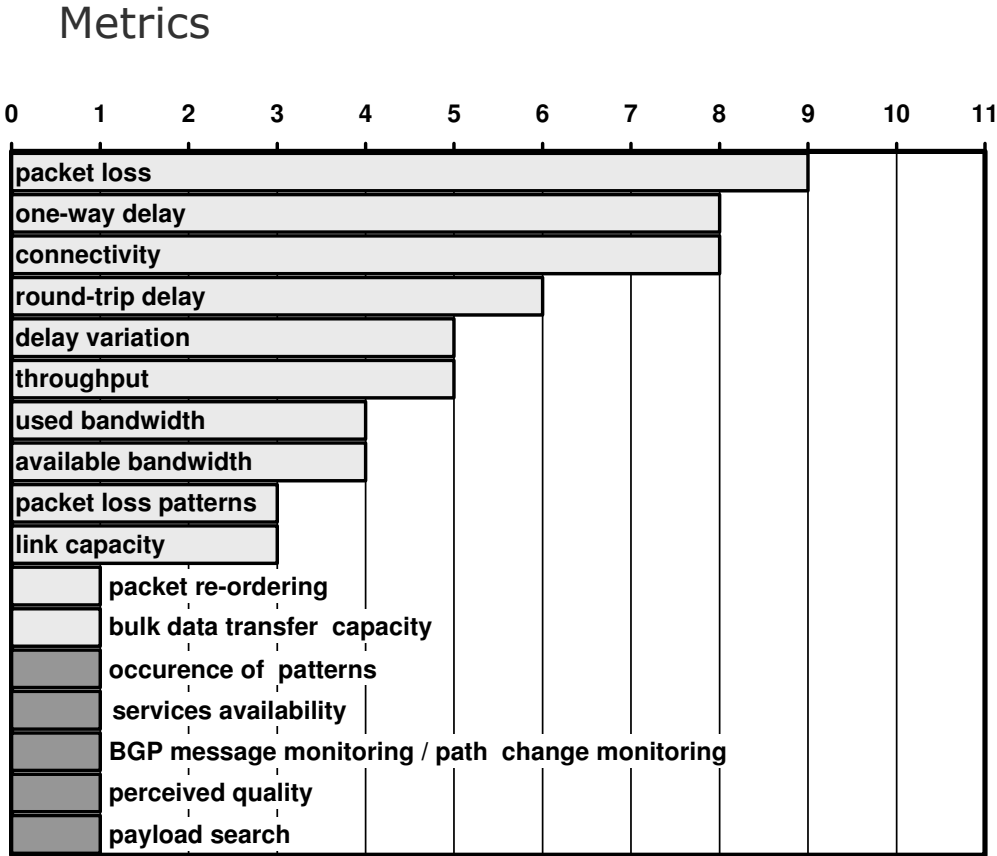
## Measurement objectives



## Measurement tools

- | Well-known tools
  - | ping, traceroute
  - | tcpdump
  - | snort
  - | nagios
  - | DAG cards
  - | etc.
- | New developments
  - | ~25 new tools

# MOME Survey – Current Results



- Standards
- | IETF dominating
    - | IPPM
    - | IPFIX
    - | PSAMP
  - | ITU
    - | Y.1540

# MOME Survey – Current Results



- | Measurement Methodologies & environment
  - | active vs. passive measurements
  - | artificial vs. operational environments
  - | Timeframe
    - | Only few long-term measurements
- | Contributions and Expectations of MOME
  - | Workshops highly demanded
  - | Measurement data
  - | Measurement tool descriptions

## Future Work & Conclusions

- | Survey is continuing throughout MOME lifetime
  - | Your project?
- | MOME platform currently under development
  - | Measurement tool exchange
  - | Measurement data exchange
- | Upcoming workshops and events

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**Thanks!**

**MOME**

Web-site: <http://www.ist-mome.org>

Mailing list: <http://www.ist-mome.org/announcements/>

Questionnaire: On-site interviews possible!

Questions?