

A Measurement and Monitoring Workbench for Tracking and Visualizing Collaboration Metrics in Real-time and for Later Analysis

Peter Bono

PRBA Associates Inc.

Niantic, Connecticut

pbono@prba.com

Steve Carson

GSC Associates

Denver, Colorado

carson@gscassociates.com

Overview

- **Background**
- **The problem and opportunity**
- **Measurement and Monitoring System**
- **Commercialization and the future**

Background

- **Rolling Start for DARPA Integrated Battle Command Program**
- **Derived from previous experience in activity monitoring**
- **Maturity of web-based infrastructure, such as Web Services**

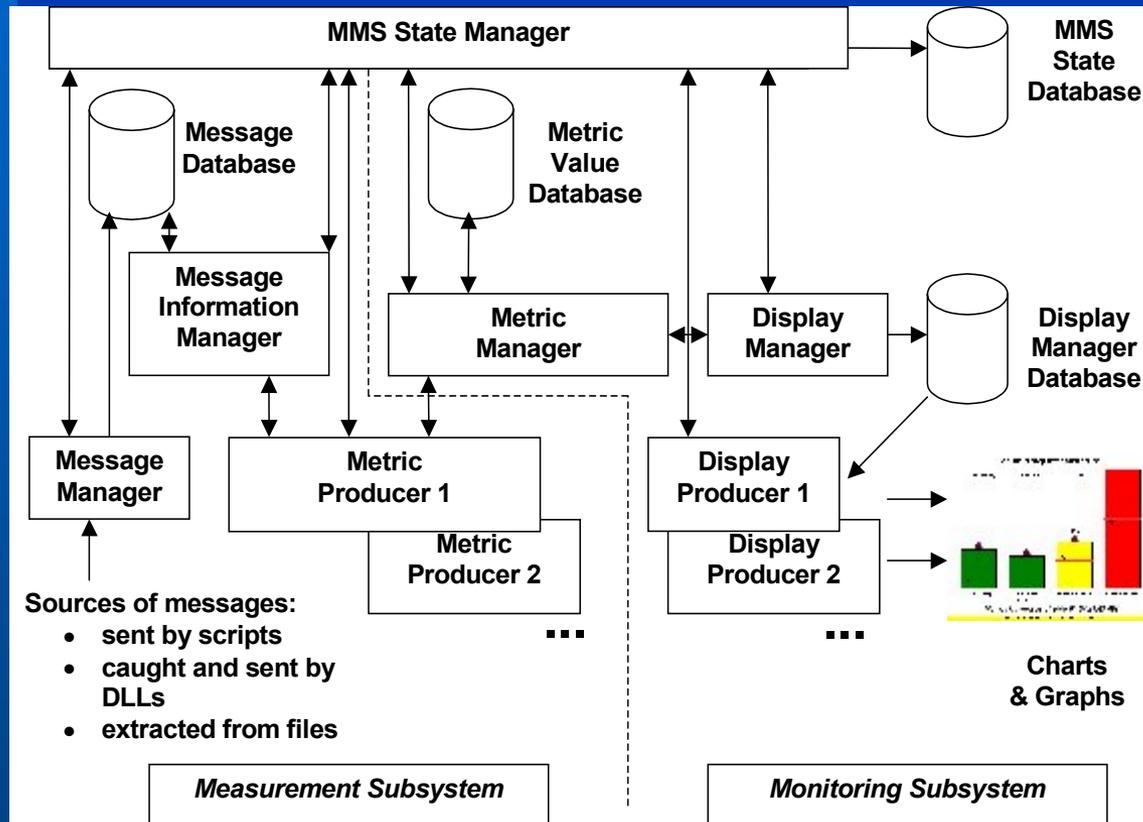
The problem and opportunity

- **Metrics have been used successfully in after-the-fact analysis of collaborations**
- **Need for a real-time capability to evaluate the effectiveness of on-going collaborations**
- **Mature supporting technologies**

Measurement and Monitoring

- The *MMS* gathers, calculates, stores, and visualizes information about collaboration
- Developed to meet certain design goals
- Underlying concepts:
 - message: an abstract raw unit of information
 - collection: an unordered set of messages
 - domain: an experiment-specific division of a collection
 - metric: a value calculated over a domain
- Implemented using web services over relational databases

Measurement and Monitoring System Architecture

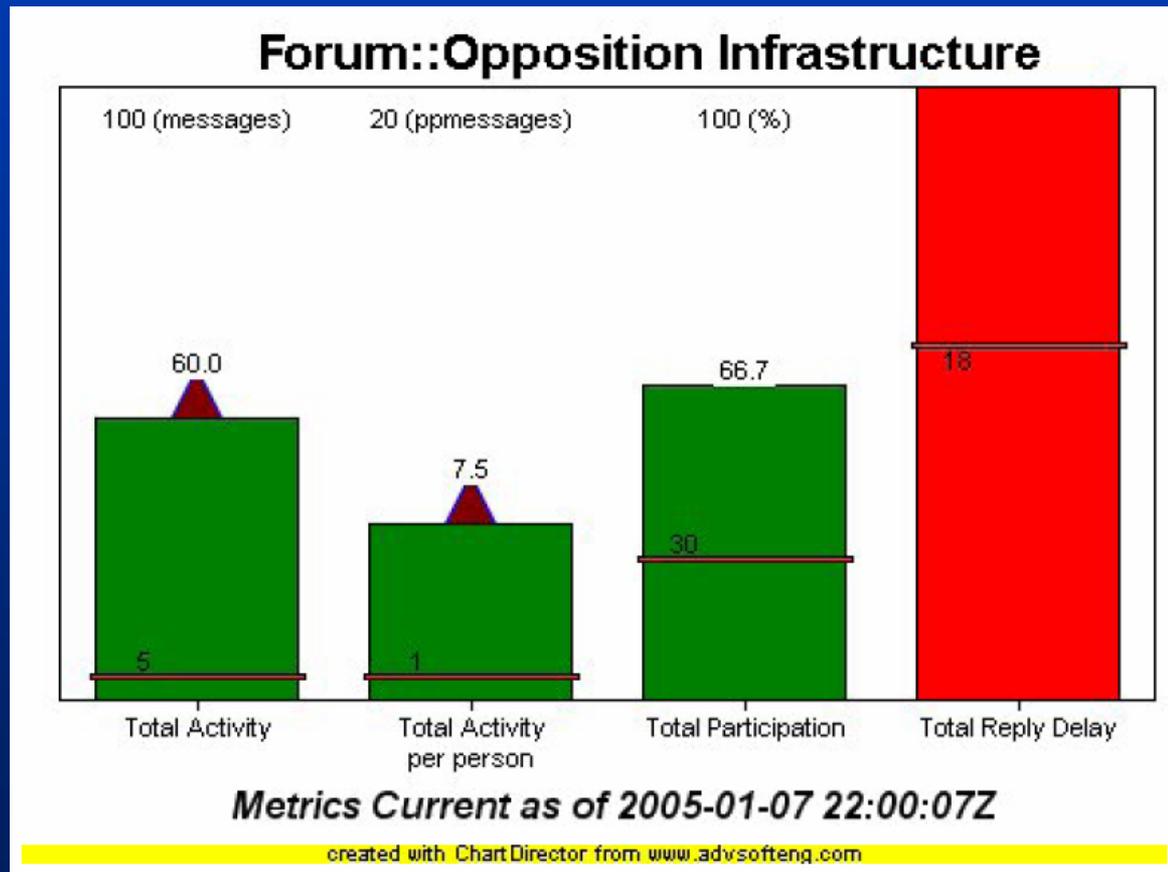


Some computed metrics

- **Daily_Activity**
- **Total_Activity**
- **Total_Participation**
- **Total_Reply_Delay**
- **Longest_Silence**
- **Daily_Activity_PP**
- **Total_Activity_PP**
- **Daily_Participation**
- **Daily_Reply_Delay**
- **Longest_Personal_Silence**

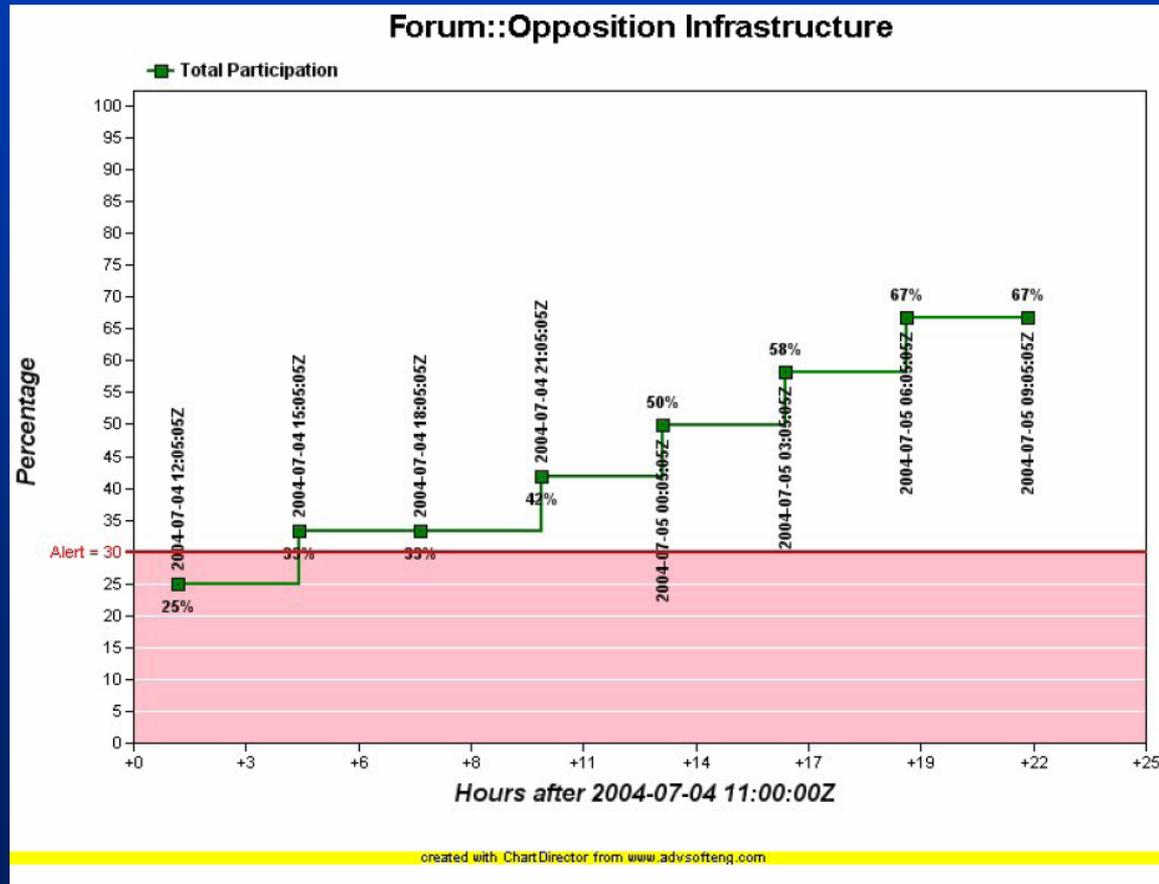
Measurement and Monitoring System Visualization 1

A bar chart of a subset of the available metrics:



Measurement and Monitoring System Visualization 2

A line graph of the time history of a single metric:



Commercialization and the future

- **Currently a commercial product**
- **Extended to support both real-time and after-the-fact analyses**
- **Validate in larger experiments**
- **Expand to add more NLP-based analysis**
- **Integrate with commercial monitoring software**