Attribute-Based Messaging (ABM)

Approach

Problem (current mailing lists)
• Limited scope for targeted messaging
• Unwanted/Duplicate messages

Area who have expertise in a specific kind of operation

Problem and Approach

Approach
• Target messages based on recipient attributes
• Create recipient lists dynamically

Challenges

• User attribute assimilation
• User attribute query
• User privacy
• Access rights
• Inter-domain messaging
  • Attribute mapping
  • Privacy policy
  • Authentication, Authorization, and Audit (AAA)

Scenarios

• Address all faculty going on sabbatical next term
• Address all the people working on security related projects in an organization
• Address all post-prelim female PhD students in computer science
• Address all TeraGrid system administrators
• Address doctors in the tri-state area who have expertise in a specific kind of operation

Phase 1 Architecture

Phase 1 Overview

• Limited to one domain or organization
• Targeting to support an organization of size comparable to UIUC

Phase 1 Implementation/Results

• Policy specification and enforcement using XACML
• Native XML database and XQuery
• 50000 users / Avg 100 attributes each

Performance computed over the green and black paths above

• Average 1.5 second for the green path
• Currently working on evaluating performance on the black path

Phase 2

• Inter-domain Attribute-Based Messaging

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