Publish/Subscribe Architectures: Attractions, Problems and Lessons

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PreCache, Inc
Asynchronous Message Delivery
Anonymous Message Delivery
Multicast Message Delivery
Expressive Filtering

A natural choice for a huge variety of enterprise, consumer, government and military content-delivery applications
Remaining Problems (I)

- Asynchronous Message Delivery
  - Bandwidth management and control
  - Denial of service
- Anonymous Message Delivery
  - Authentication
  - Trust
- Multicast Message Delivery
  - Inadequate deployment of multicast IP
  - Conservatism of ISPs
Remaining Problems (II)

- **Expressive Filtering**
  - Exploiting filters for routing and forwarding
  - Disruption to filter propagation due to mobility

- **Applications**
  - Reformulating “pull” applications as “push”
  - Delivering large payloads
    - Images
    - Audio
    - Video
  - Training users about appropriate/inappropriate uses
Key Lesson: Architecture Matters!

- A few years ago, *push technology* was all the rage for content delivery
  - But it never fulfilled its promise
  - Industry observers concluded "push is dead"
- Lesson: the technologies paid insufficient attention to *architectural issues*
  - Example: PointCast
    - Proprietary content source
    - Proprietary content delivery client
    - Centralized server architecture