

# Configuring Push-Based Web Services

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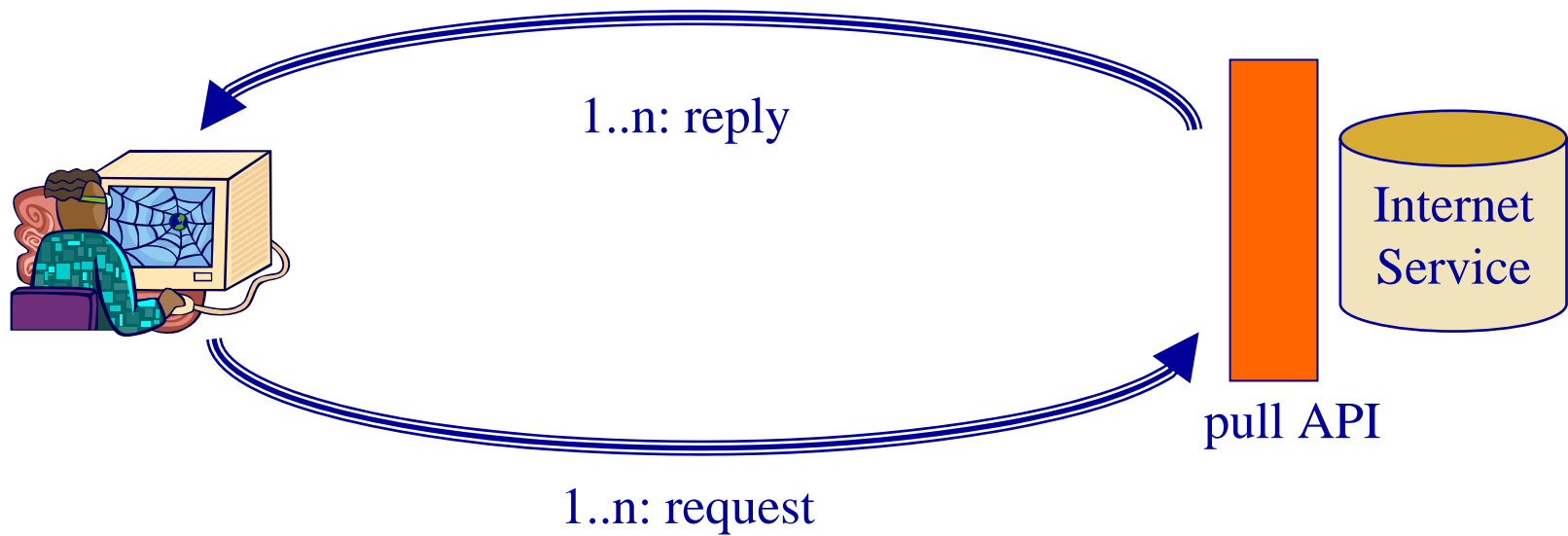


# Outline

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- Traditional Internet usage pattern inappropriate in some situations.
- Experience with new architectures based on Web Service technologies.
- Generalizations of our findings.

# A Pull-based Infrastructure



# The Pull-based Web

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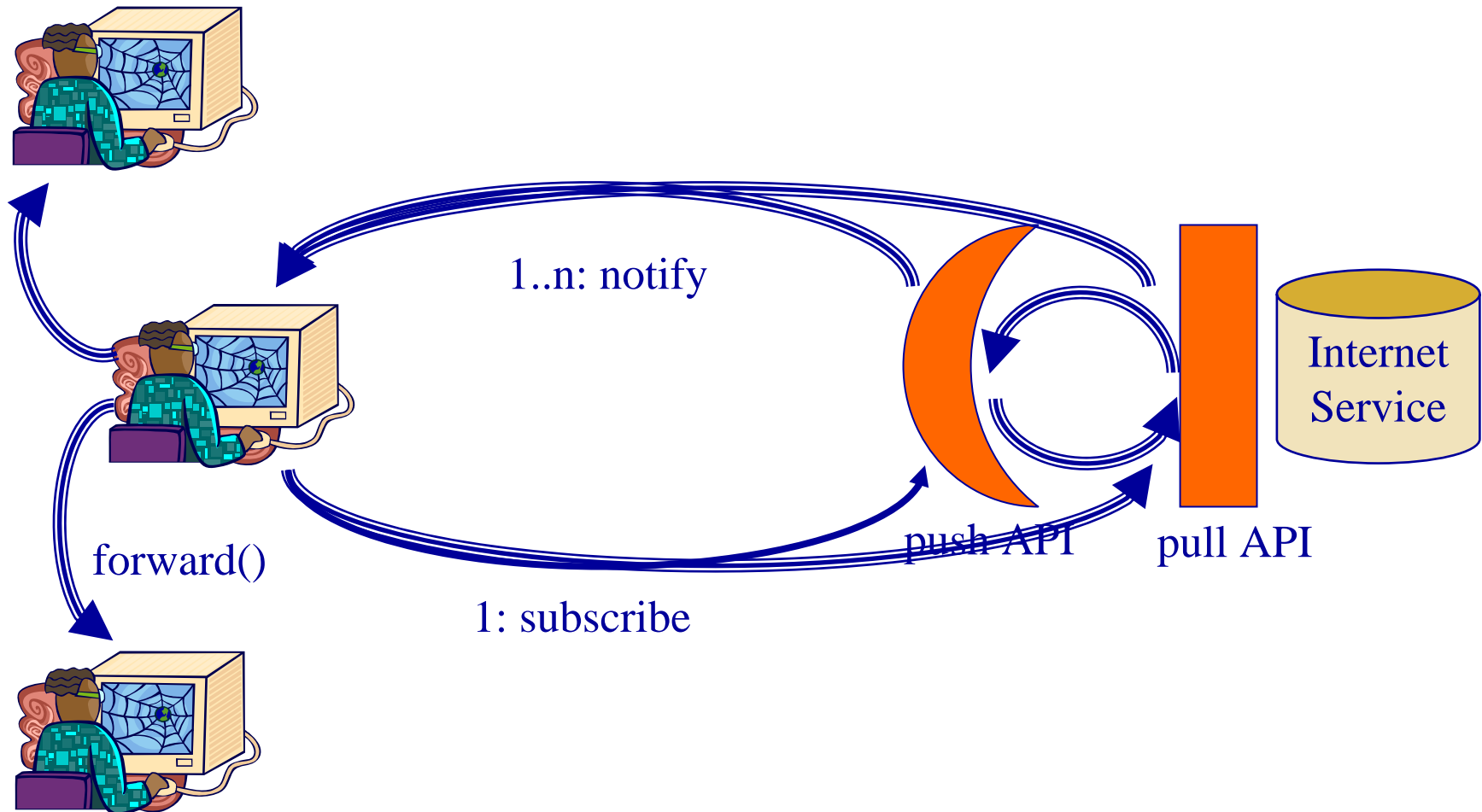
- Traditional Internet is pull-based:
  - Client/Server model.
  - Web browsing, web services, RPC etc.
- Pull does not scale for dynamic information.
  - Short-lived and urgent.
  - Non-predictable update frequency.
  - High pull-frequency strains network resources.
  - Client-side evaluation required.

# Extending the Pull-based Web

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- Place subscription-based filters close to existing information sources.
- Extend pull-based sources with a push API.
- Reduce strains on sources, network and users.
- New applications possible.

# A Push-based Infrastructure

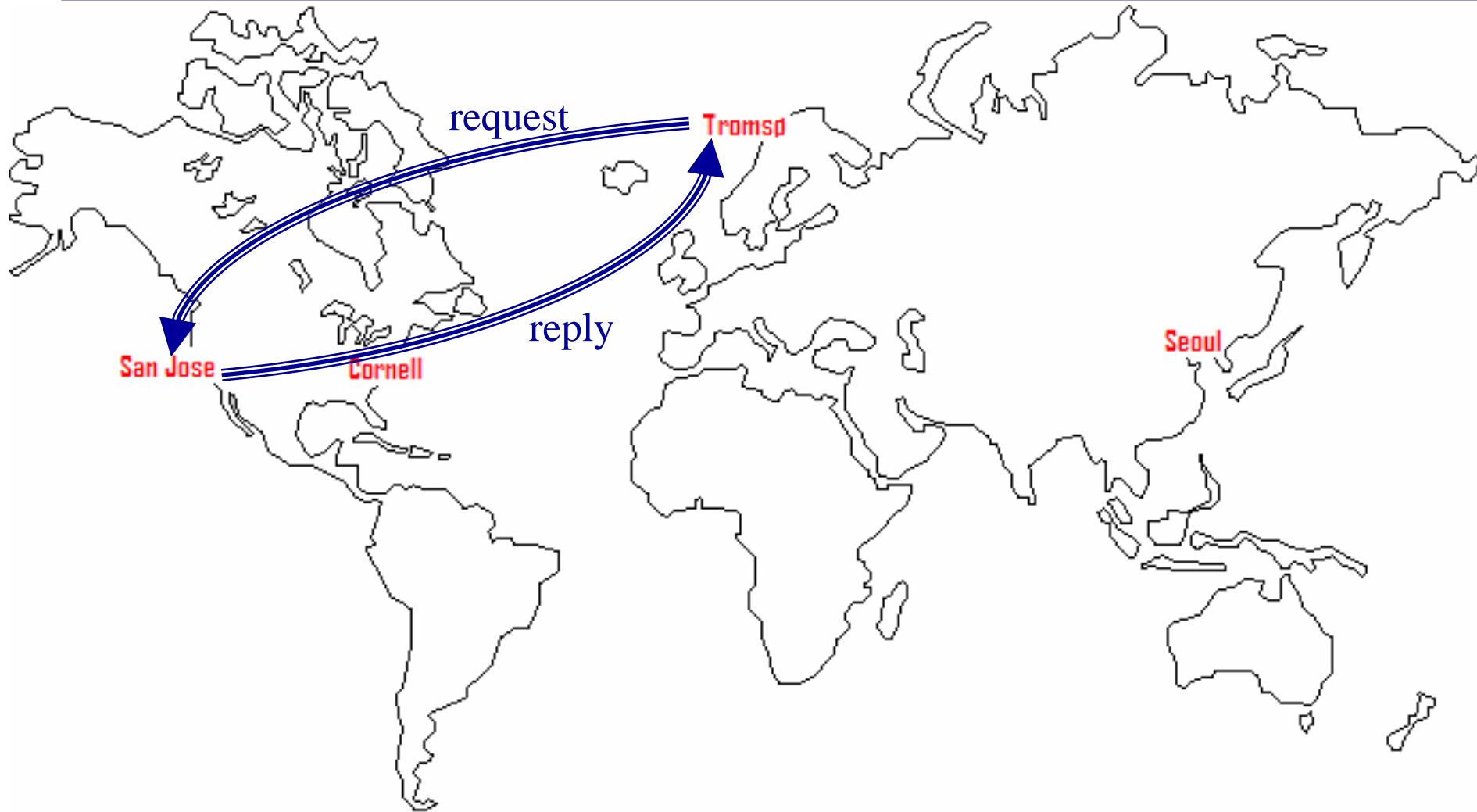


# Push-based Wrappers

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- Proxy wrapper for pull-based sources.
  - ☒ Push-API.
  - ☒ Subscription-handling.
  - ☒ Filtering.
  - ☒ Event correlation.
- Web Services' rich pull-API easy to extend.

# Example: NASDAQ Stock Quotes





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# Configuring Push-based Web Services

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- Upstream evaluation by wrapping.
  - Subscription-based, personalized filters.
  - Client-specific delivery timing.
- Significant gains possible.
  - Experiments show more than 97 % reduction message volume (for stock data).
  - Reduces network strain and client disturbance.

# Wide Area Information Filtering

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- Computer interaction patterns are changing.
- Continuous computing on users behalf.
  - Personal Overlay Network Systems (PONS).
- Push communication on many levels.
  - Fine-grained file system events.
  - Collaborative filtering and recommendations.
  - User environment migration.

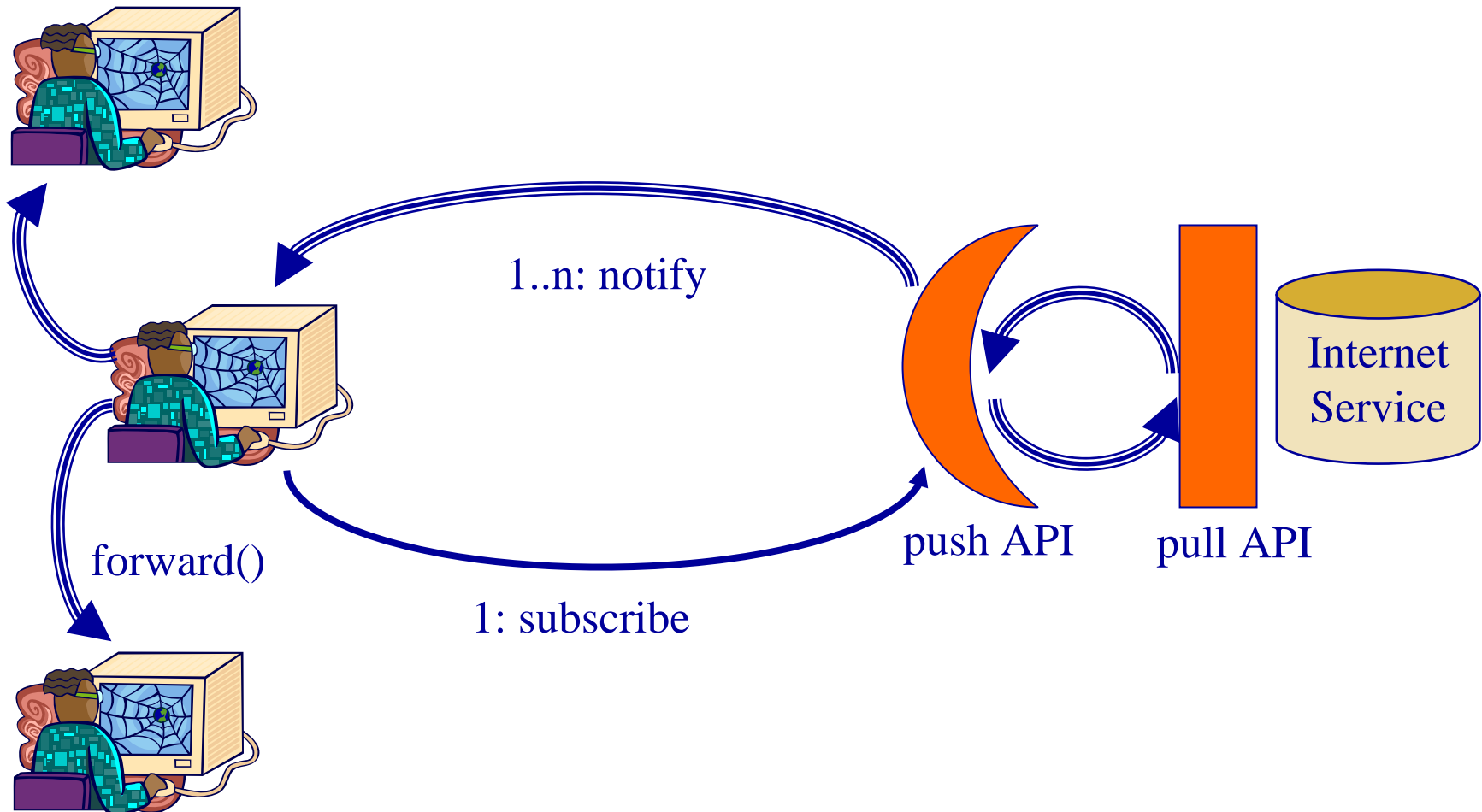


# Questions?

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<http://www.waif.cs.uit.no>

# A Push-based Infrastructure

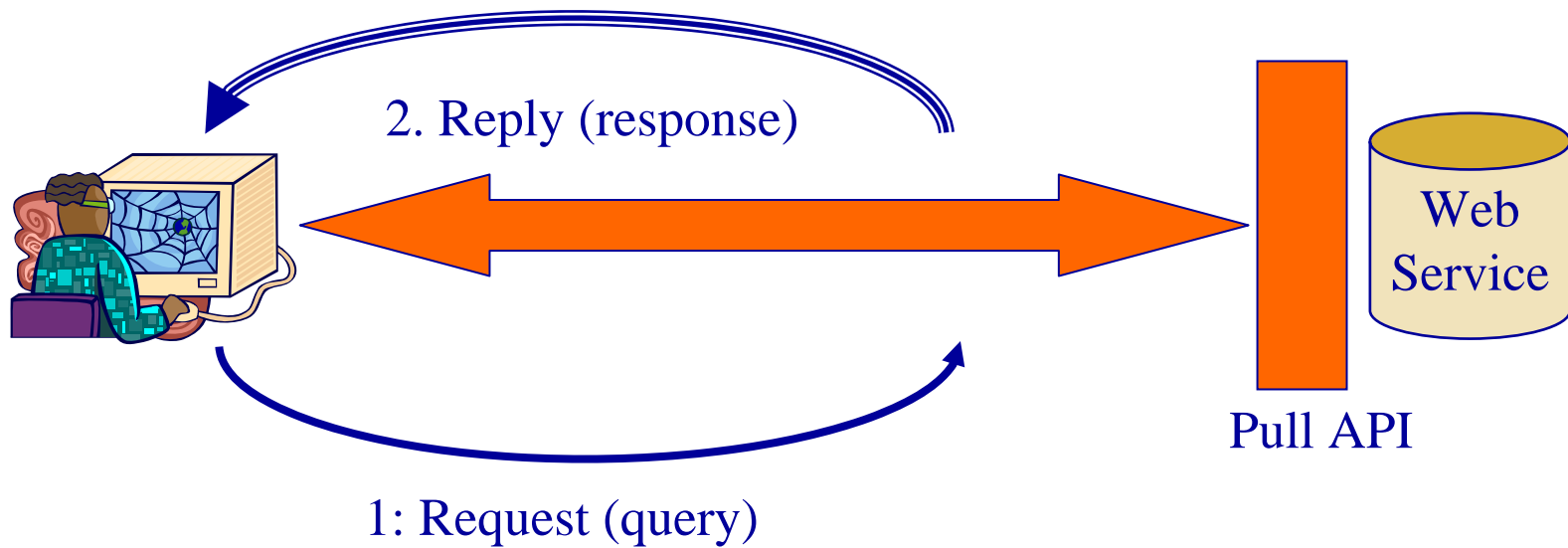


# Alternatives to Frequent Pulling

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- Upstream evaluation.
  - ☒ Subscription-based filtering.
  - ☒ Delivery by (in-frequent) pull or push.
  - ☒ High precision.
  - ☒ Better timeliness.
- Wide Area Information Filtering (WAIF)
  - Push-based filtering networks.

# A Pull-based Infrastructure



# A Push-based Infrastructure

