Cache-Oriented Content Sharing over Content Centric Networking

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Outline

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• Introduction

• Motivation

• Proposal

• Conclusion
Introduction

Alice

Bob
Motivation (1/2)

Cached data become meaningless

Member list

C1

C2

Current Group Key

New Group Key

(Producer)

G (Group Key)

(Consumers)

Interest

Interest
Motivation (2/2)

• Producers need to re-distribute contents when membership changes

Content sharing without re-distribution in a dynamic community is needed
Proposal (1/2)

- **Data Key**
- **Current Group Key**
- **New Group Key**

(Producer)

G (Group Key)

Member list

C1

(Consumers)

C2

Content encrypted

Only Data Key is transmitted again (No content re-distribution) → More efficient

Data Key encrypted with Group Key

Interest (Data Key)
Proposal (2/2)

• Two keys are used
  – Group Key
  – Data Key

• Content is encrypted with a Data Key and sent out
  – Data Keys are made by the producers

• The Data Key is encrypted with the Group Key and sent out

A producer needs to re-distribute only a Data Key

• There is no need of content distribution
Conclusion

• By using the two keys, we don’t have to discard cached contents in CCN routers when someone joins/leaves the community
  – That will lead to reduction in network load
• As a future work, we will propose an efficient caching policy
  – So that our content sharing will be more efficient
Thank you