

# Consideration on applying ICN to Edge Computing

draft-wang-icnrg-icn-edge-00

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ICNRG

# Overview

- This is a new draft.
- This draft
  - Aims at research on applying Information Centric Networking (ICN) technology to Edge Computing
  - Analyzes the reasons and opportunities of deploying ICN on EC
  - Describes technical considerations and relevant scenarios.

# ICN and EC



## Edge Computing

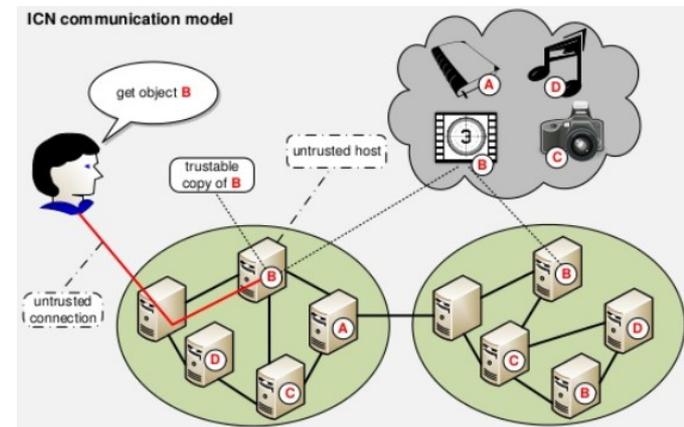
- ✓ Close to Users, low latency
- ✓ Data preprocessing
- ✓ Decentralized system
- ✓ Local computing, storage, connectivity
- ✓ Edge intelligence
- ✓ ...

Broadly on IoT and industrial verticals such as Energy, Manufacturing, Smart City and Smart Grid.

## Information Centric Networking

- ✓ Name Based Routing
- ✓ Distributed Local Communication
- ✓ Information Based Security Mechanism
- ✓ Multicast
- ✓ Caching and Forwarding System
- ✓ ...

Information Centric Networking (ICN) takes significant technical revolution and fundamental change on communication and networking.



# QUESTION: *Is there any chance that ICN CAN BENEFIT EC?*

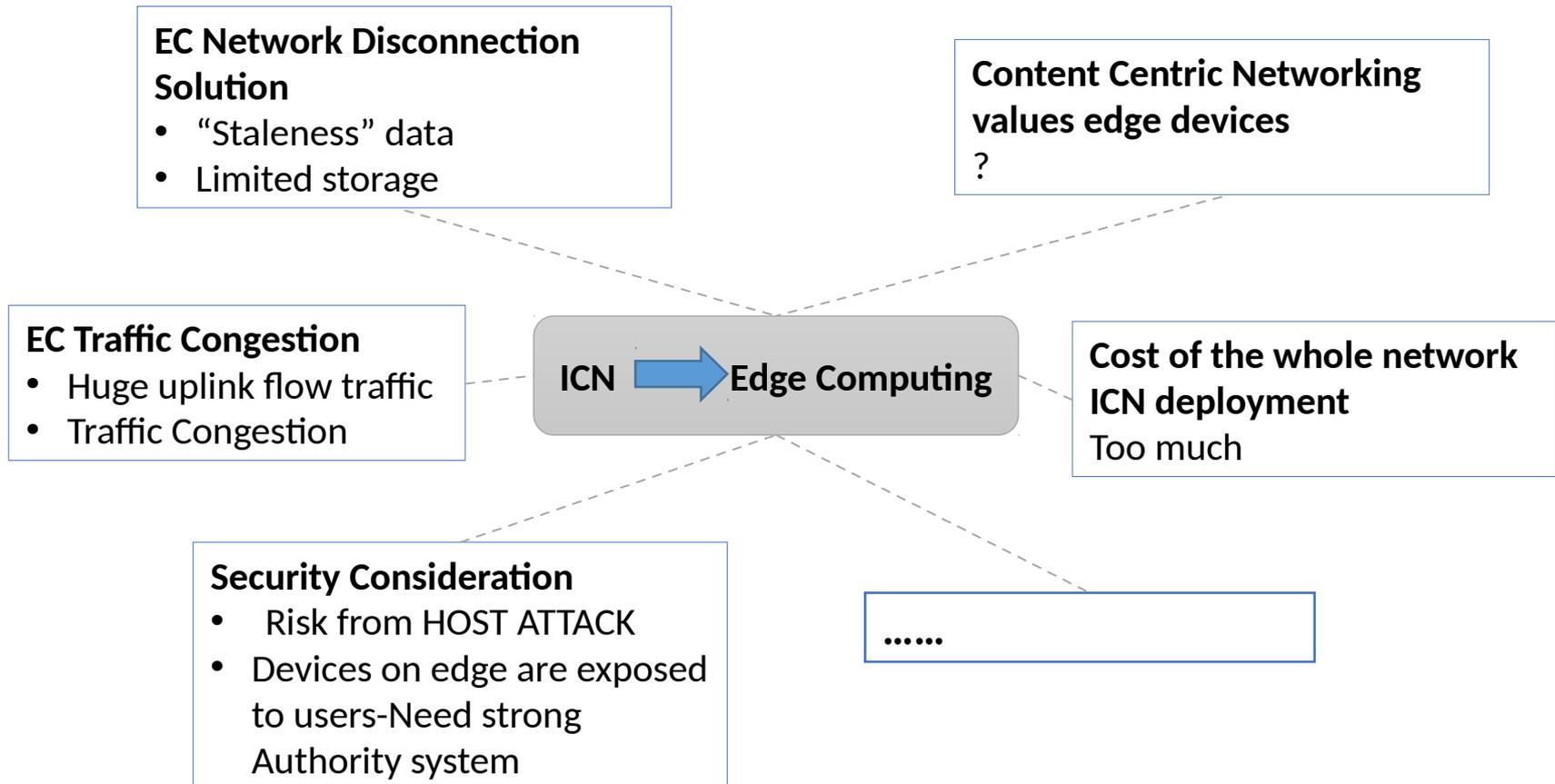
## Opportunities of Applying ICN to EC

- ICN Enable Traffic Convergence
  - Considerable uplink traffic on edge in IoT
  - Traffic service flattening
- Functionality Complementary
  - Win-win approach,
  - Benefit mutually for maximum performance
- Practicality of ICN Deployment on Edge
  - Mitigate whole network deployment cost and complexity
  - More Flexible

# Technical consideration of applying ICN to Edge Computing(1)

- EC network disconnection solution
- Traffic Congestion
- Security Consideration of Using ICN
- Content Centric Networking values edge devices
- Partial deployment of ICN on Edge

# Technical consideration of applying ICN to Edge Computing(2)



# Technical consideration of applying ICN to Edge Computing(3)

## EC Network Disconnection Solution

Caching algorithm help update data efficiently and dynamically

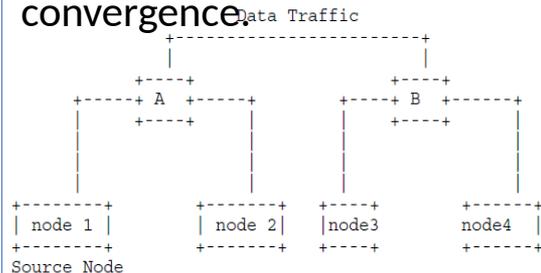
## Content Centric Networking values edge devices

values edge devices

Naming on edge node gain more valuation.

## EC Traffic Congestion

Communication congestion is reduced by traffic convergence



ICN → Edge Computing

## Cost of the whole network ICN deployment

Partial deployment of ICN on Edge  
Enough to highlight its advantage

## Security Consideration

- Name based security
- Self-certify Authority model

.....

# Both popular! Together?

- Promising Future
- More scenarios
- More consideration on technologies
- More challenges
- .....

**Reversely, EC also benefits ICN: EC makes ICN more intelligent, and more efficient!**

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  - <https://tools.ietf.org/html/draft-wang-icnrg-icn-edg-e-00>
- 
- NEED MORE REVIEWS AND FEEDBACK!
  - INPUTS AND CONTRIBUTIONS FOR DRAFT ARE APPRECIATED!

Thank you!

