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**OCTOBER 11-14**

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# UNLEASH THE POWER OF LIMITLESS CONNECTIVITY



**2021 Fall  
Technical Forum**  
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## Operational Transformation

# Reducing the cost of network traffic monitoring with AI

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**VIRTUAL EXPERIENCE  
OCTOBER 11-14**

Observe and Store

Analyze and Predict

Decide and Act

## Inventory & Measurements

- Equipment
- Connectivity
- Services
- Packet measurements
- Physical layer measurements

## Big Data & AI

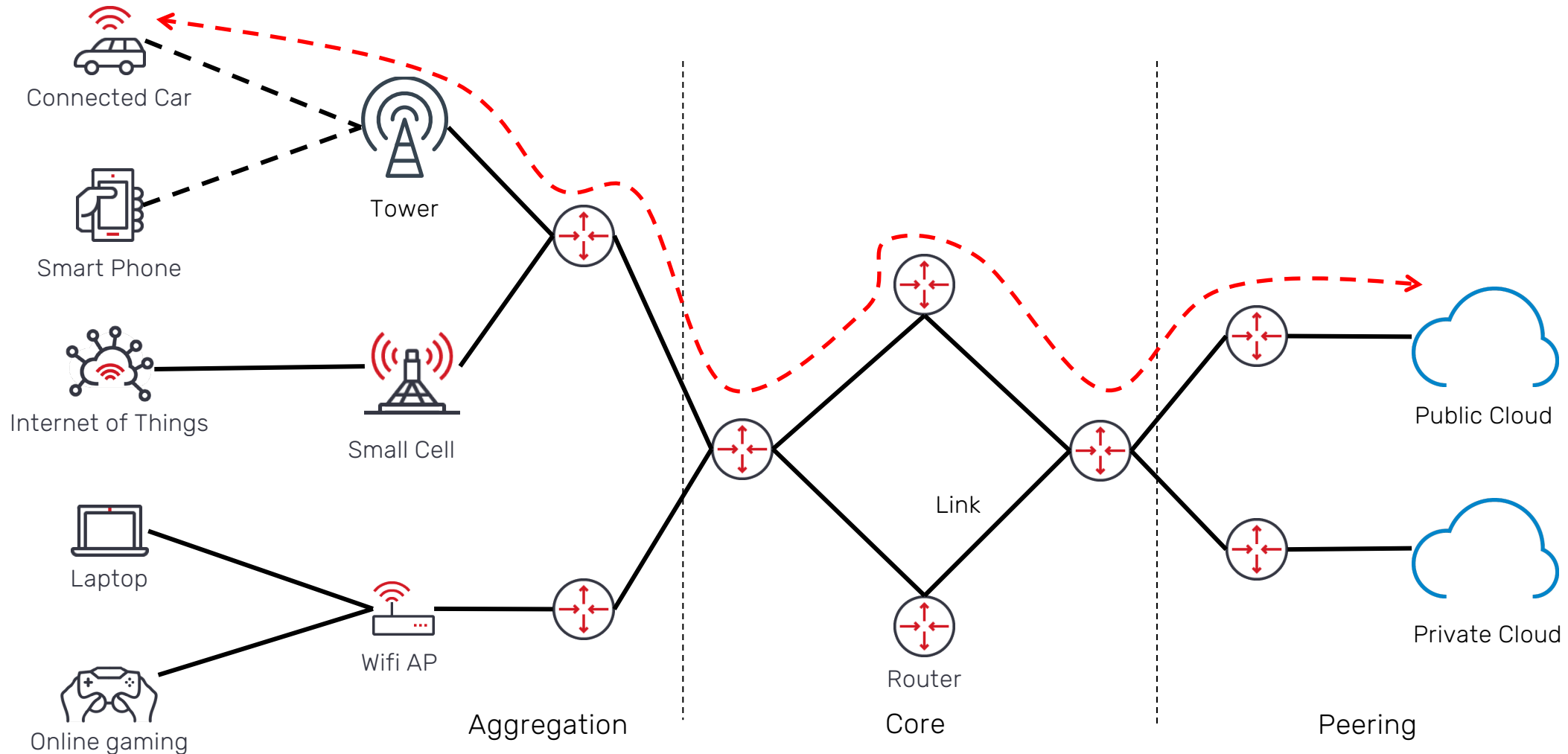
- Data engineering
- Data selection
- High capacity ML models
- Data imputation/compression
- AI Ops
- Automatic ML/AI

## Network Control & Planning

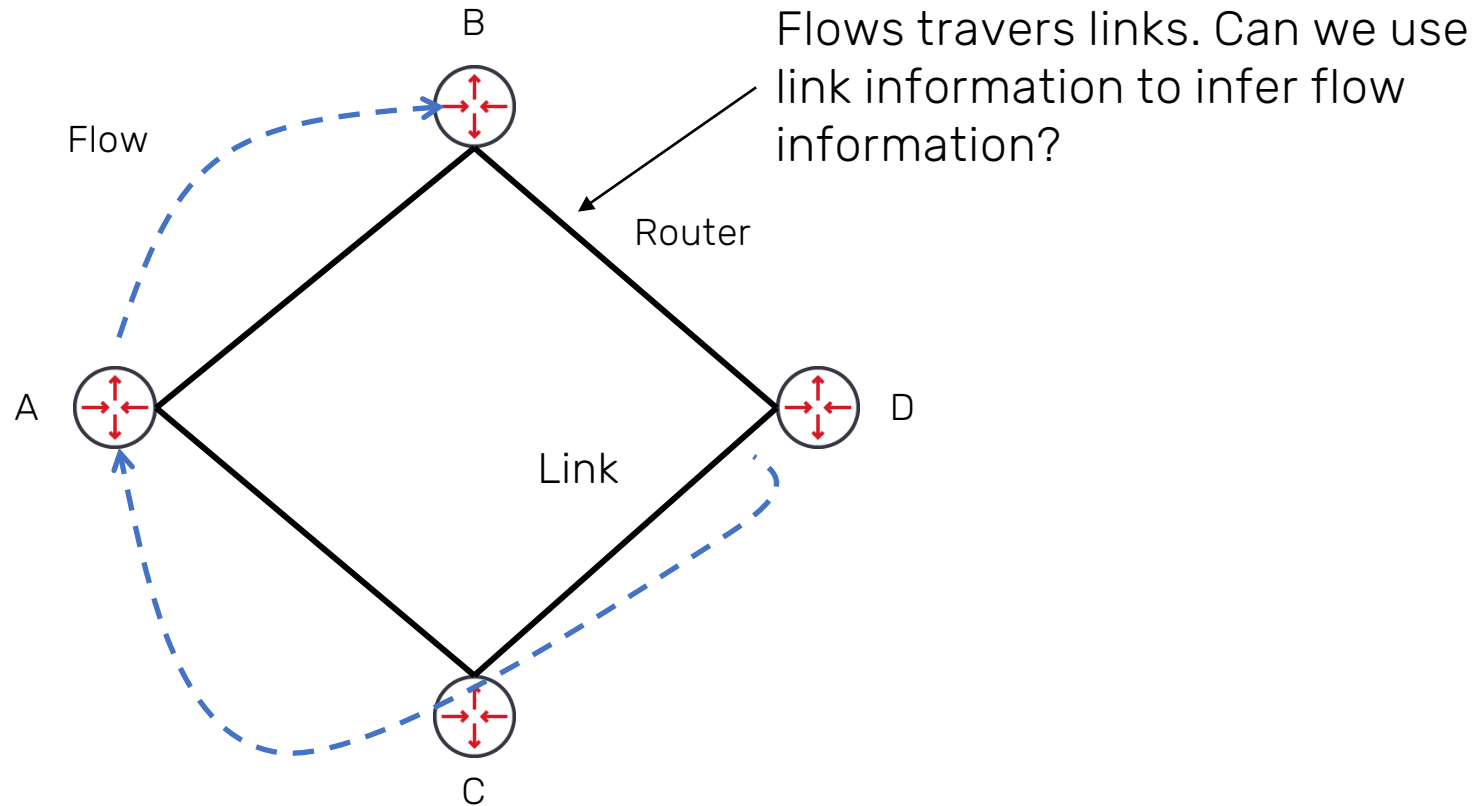
- Fixed, best effort algorithms
- Static policy
- Adaptable algorithms
- Dynamic policy

As predictions get better, the role of human judgment changes and more and more decision making can be automated

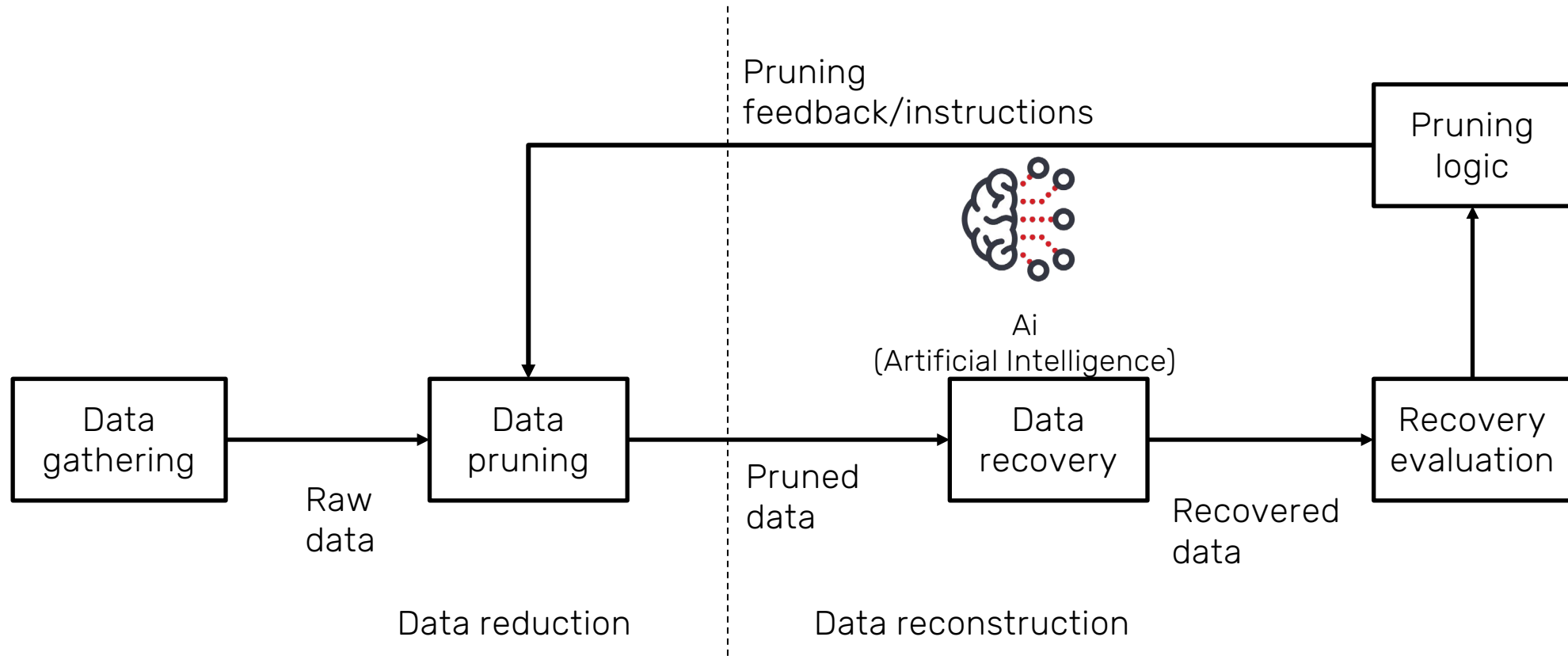
# Network monitoring is complex with traditional technologies



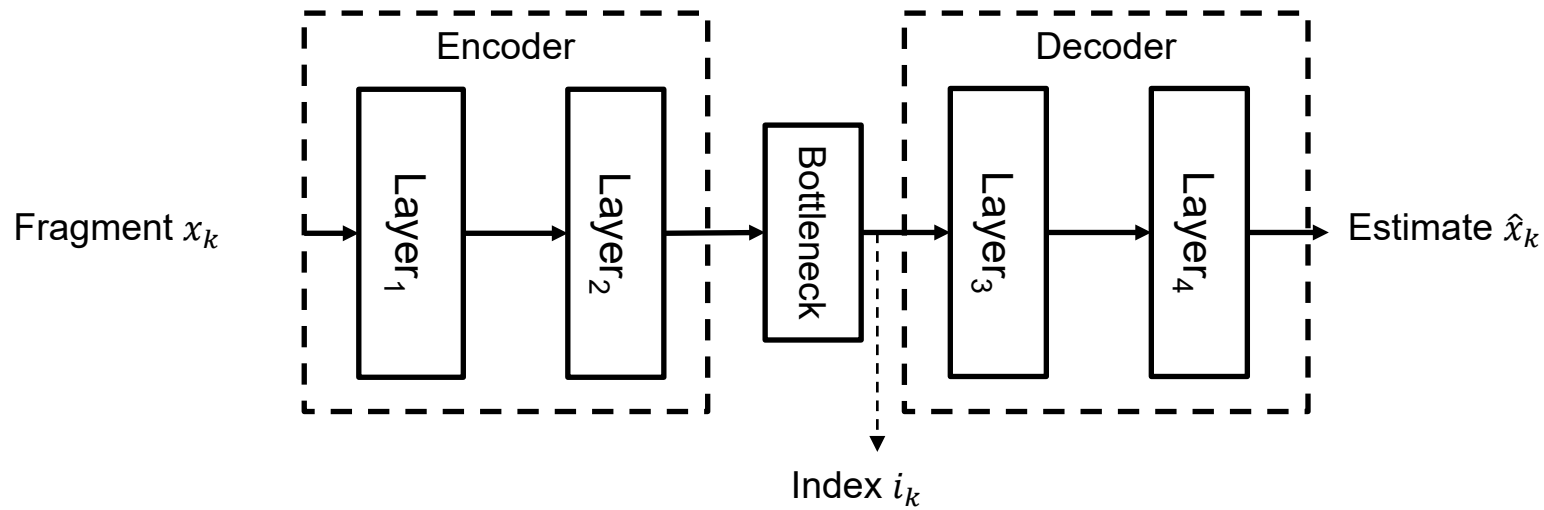
**Data is collected from multiple points and stored for long periods of time. Can we reduce the amount collected data and the volume of stored data?**



**In one example network the amount of information was reduced by 75% with acceptable loss of flow precision.**

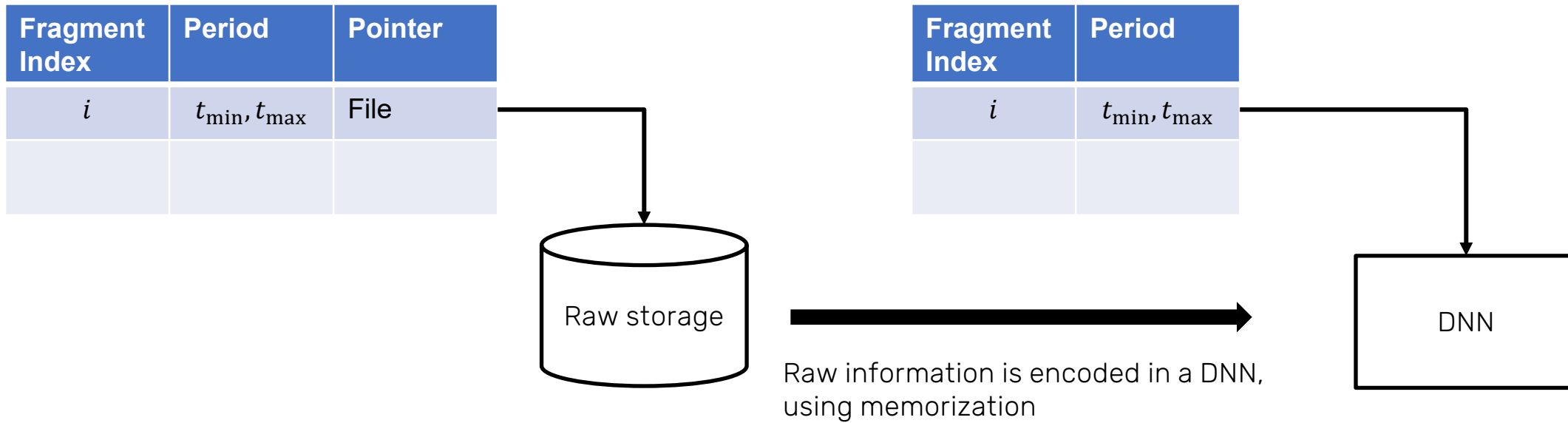


**In one example network the amount of information was reduced by 20% with acceptable loss of flow precision.**



**The network uses interleaving in the frequency domain and the bottleneck which models the missing data as noise to reconstruct the data.**

# Information storage can be reduced with compression



**In one example the cost of storing information in the cloud was reduced by 96% with acceptable loss of flow precision.**



## Key Takeaways

- 1 AI is a prediction technology. Prediction is the process of filling missing information.
- 2 There are many uses cases where filling missing information can reduce network monitoring costs.
- 3 Information collection can be reduced by collecting link information only.
- 4 Information collection can be reduced by taking advantage of correlations.
- 5 Information storage can be reduced with compression.



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# Thank You!

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