

# Linearly Compressed Pages: A Main Memory Compression Framework with Low Complexity and Low Latency

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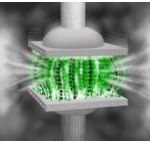
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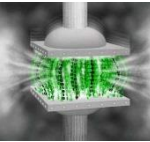
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- Main memory is a limited shared resource
- **Observation**: Significant data redundancy
- **Old Idea**: Compress data in main memory



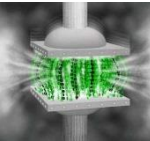
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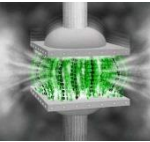
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  1. Increases capacity (**62%** on average)
  2. Decreases bandwidth consumption (**24%**)
  3. Improves overall performance (**13.9%**)



# Linearly Compressed Pages (LCP)

Uncompressed Page (4KB: 64\***64B**)

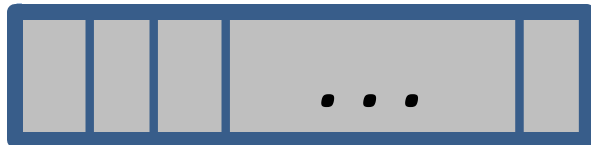


# Linearly Compressed Pages (LCP)

Uncompressed Page (4KB:  $64 \times 64B$ )



4:1 Compression



Compressed  
Data (1KB)

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Uncompressed Page (4KB:  $64 \times 64B$ )



4:1 Compression



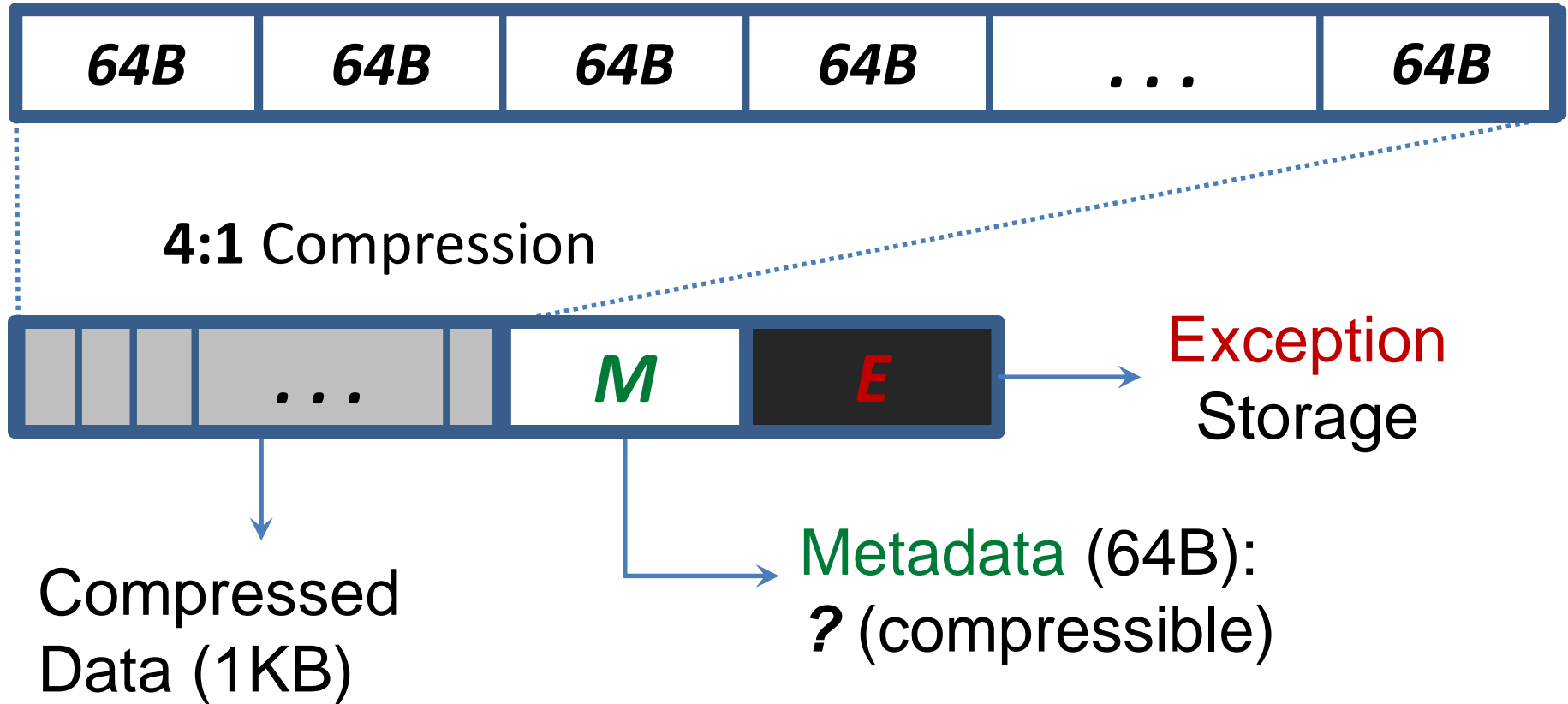
Compressed  
Data (1KB)

Metadata (64B):  
? (compressible)



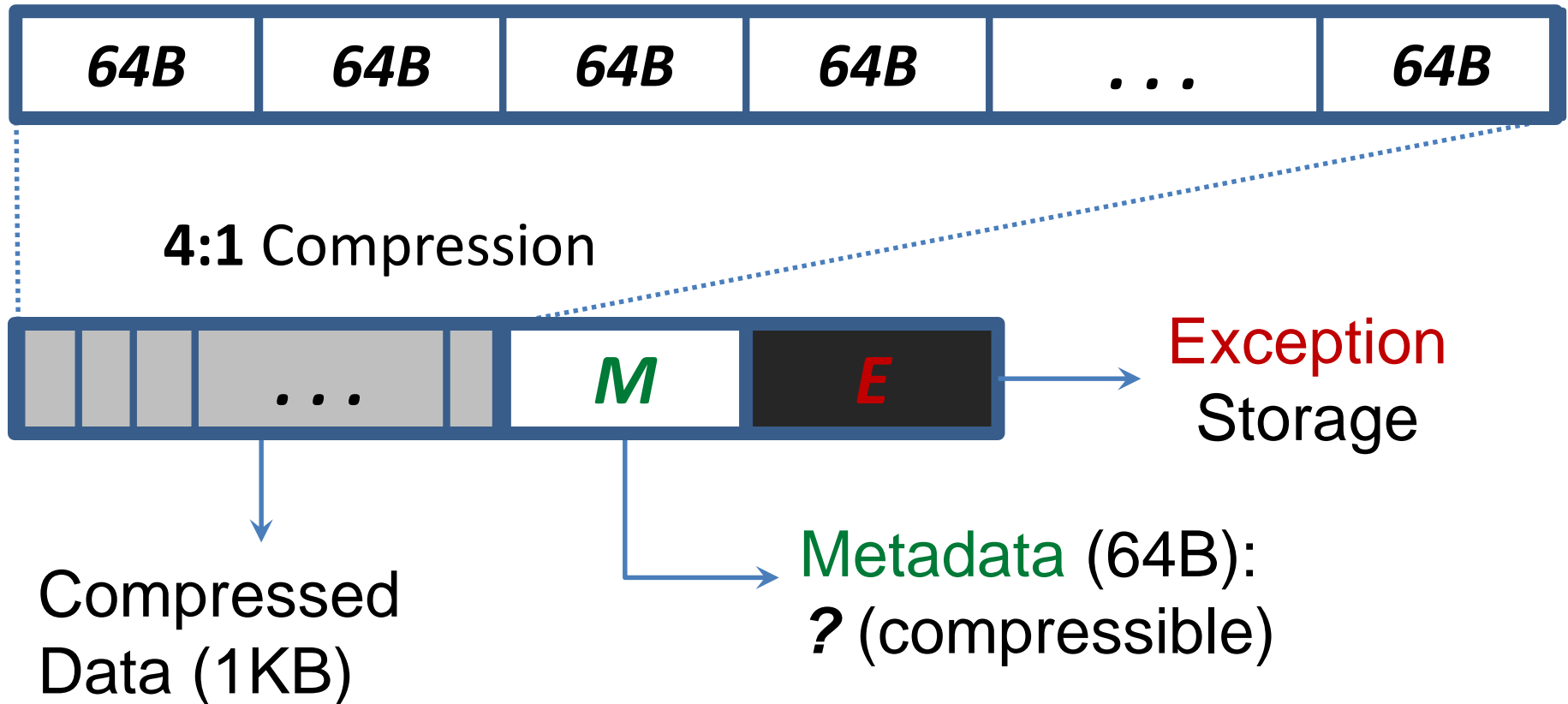
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Tomorrow, 8:30am, Session 3A