Clustering Download Events to Identify Classrooms

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Thanks!

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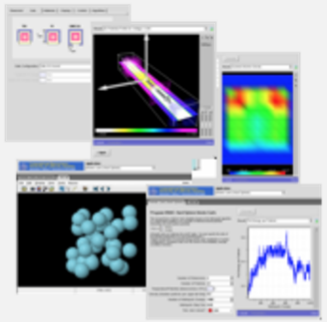
Simulation & Modeling Tools



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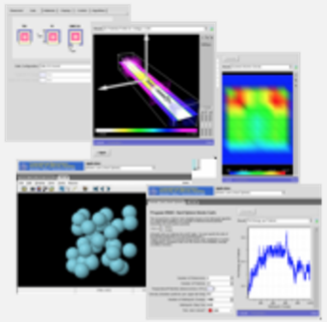

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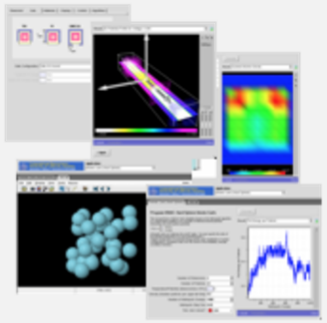

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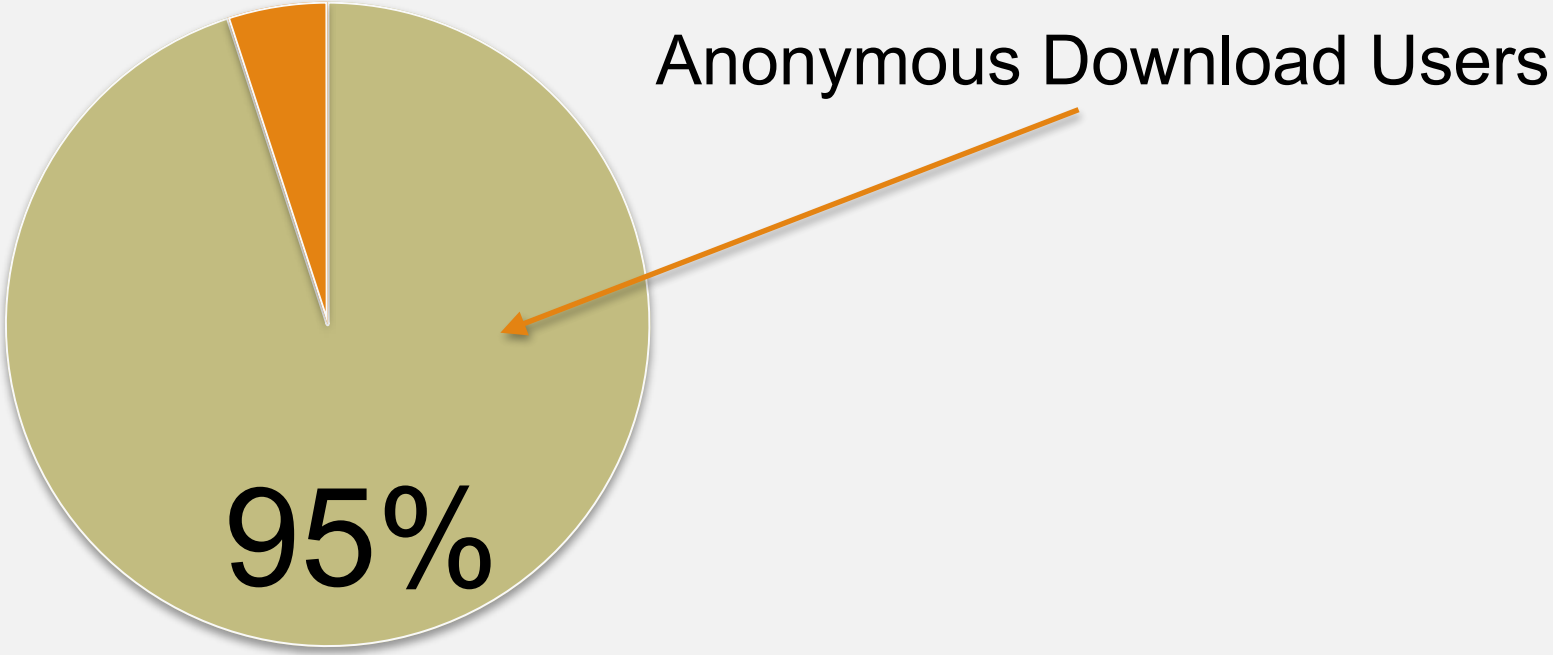

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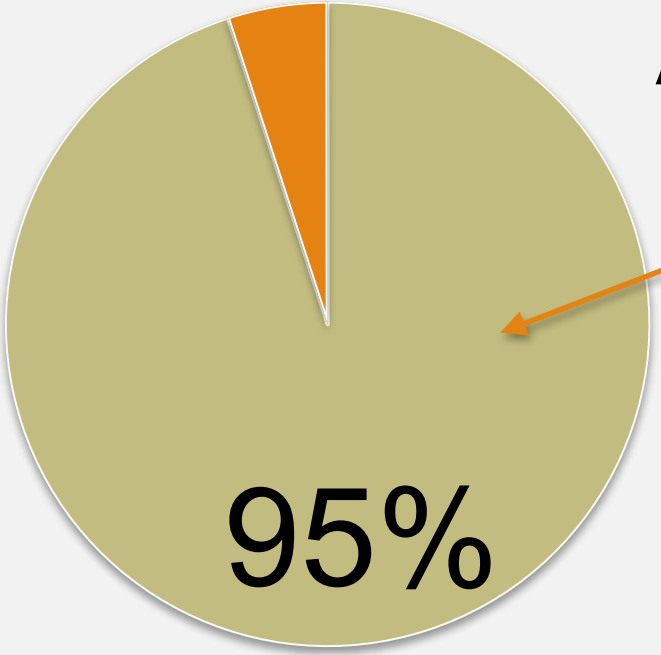

Anonymous Download Users

- Content item or Resource
- Timestamp
- IP address

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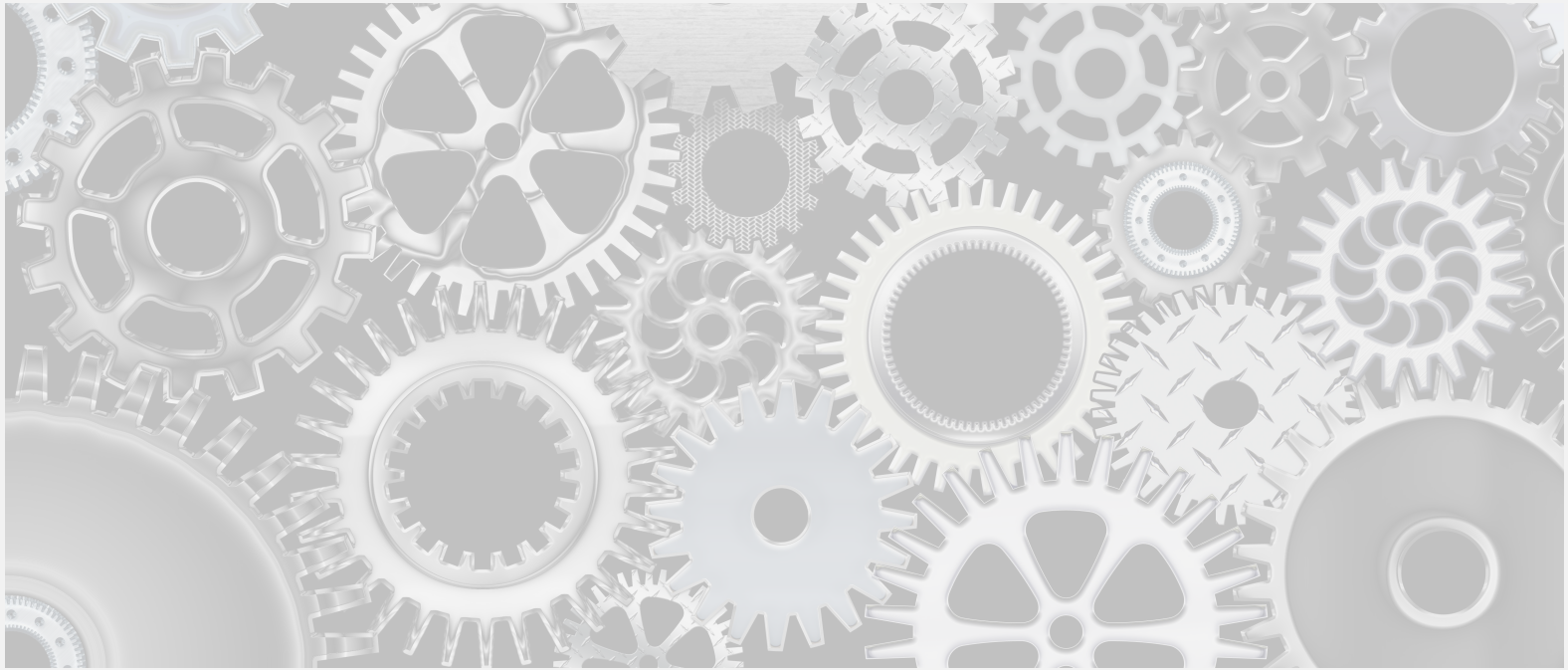
Dates



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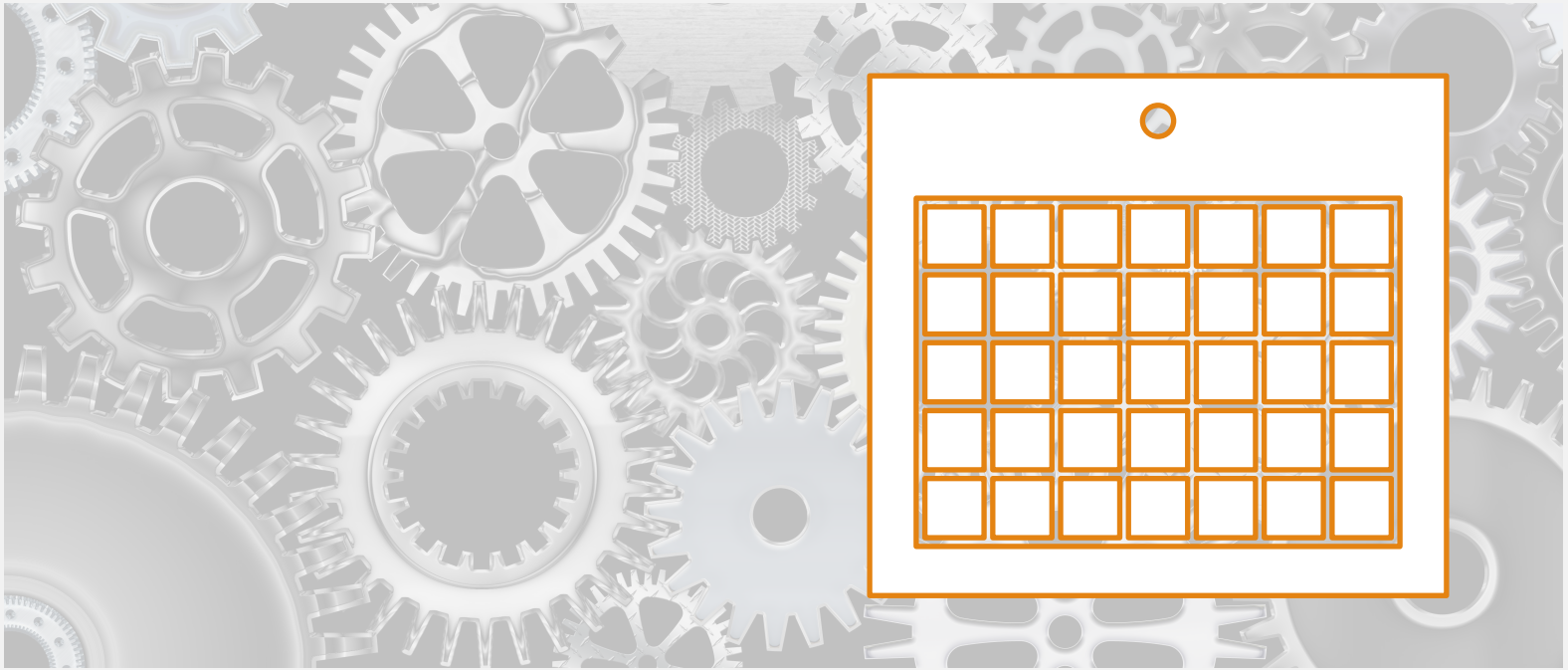

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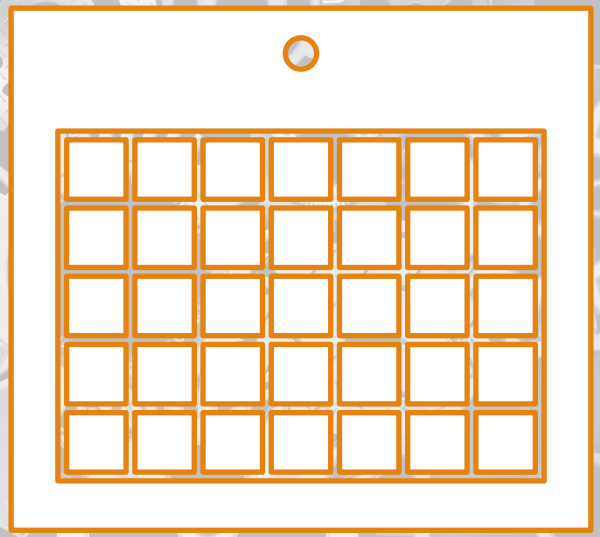
Dates

- Natural Groupings
  - Weeks
  - Months
  - Years



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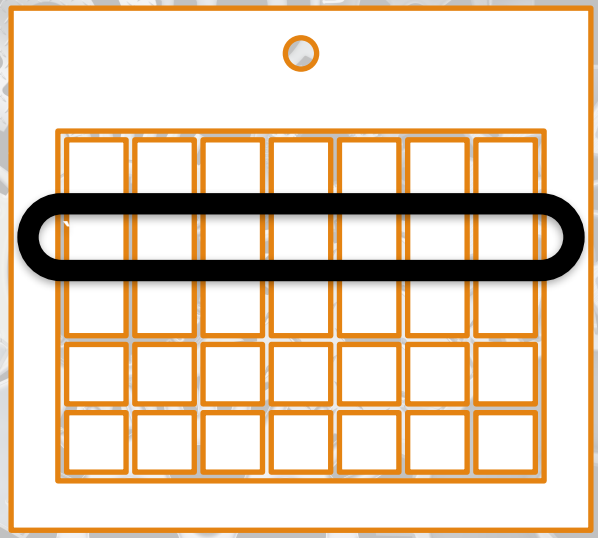

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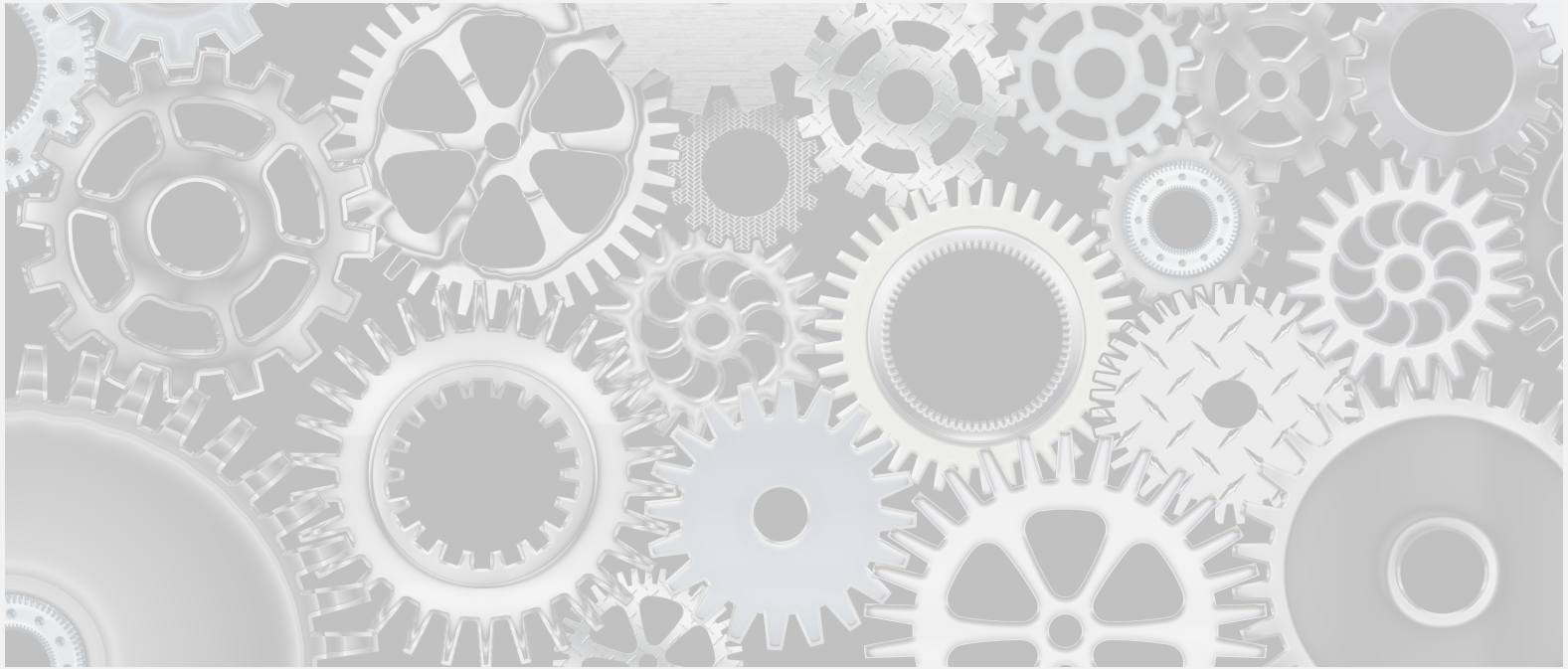
Location



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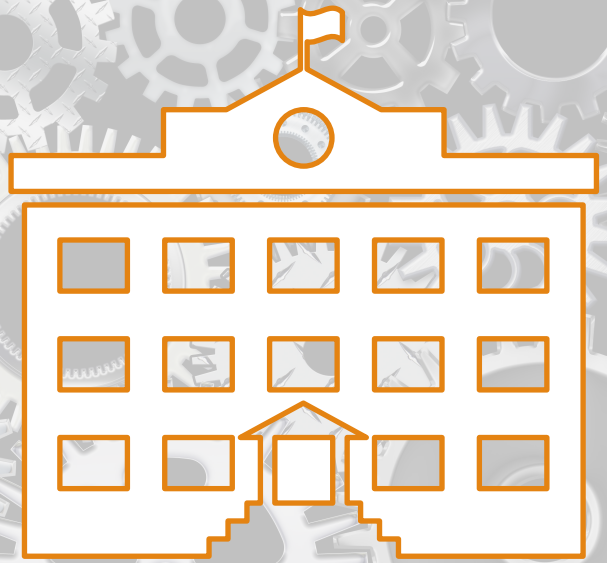
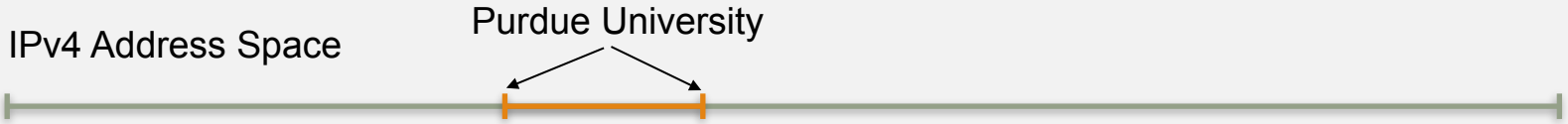
Location

- Classrooms bring students together
- Nearness vs. Location



IP Addresses and “nearness”



IP Addresses and “nearness”

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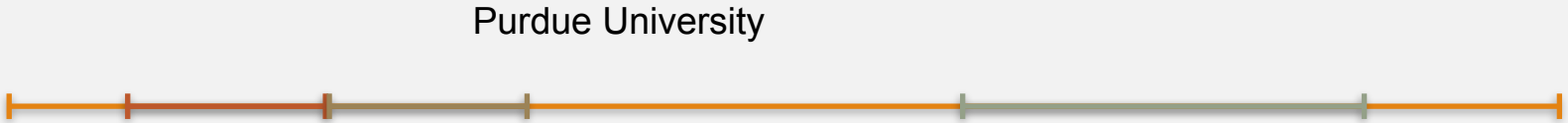

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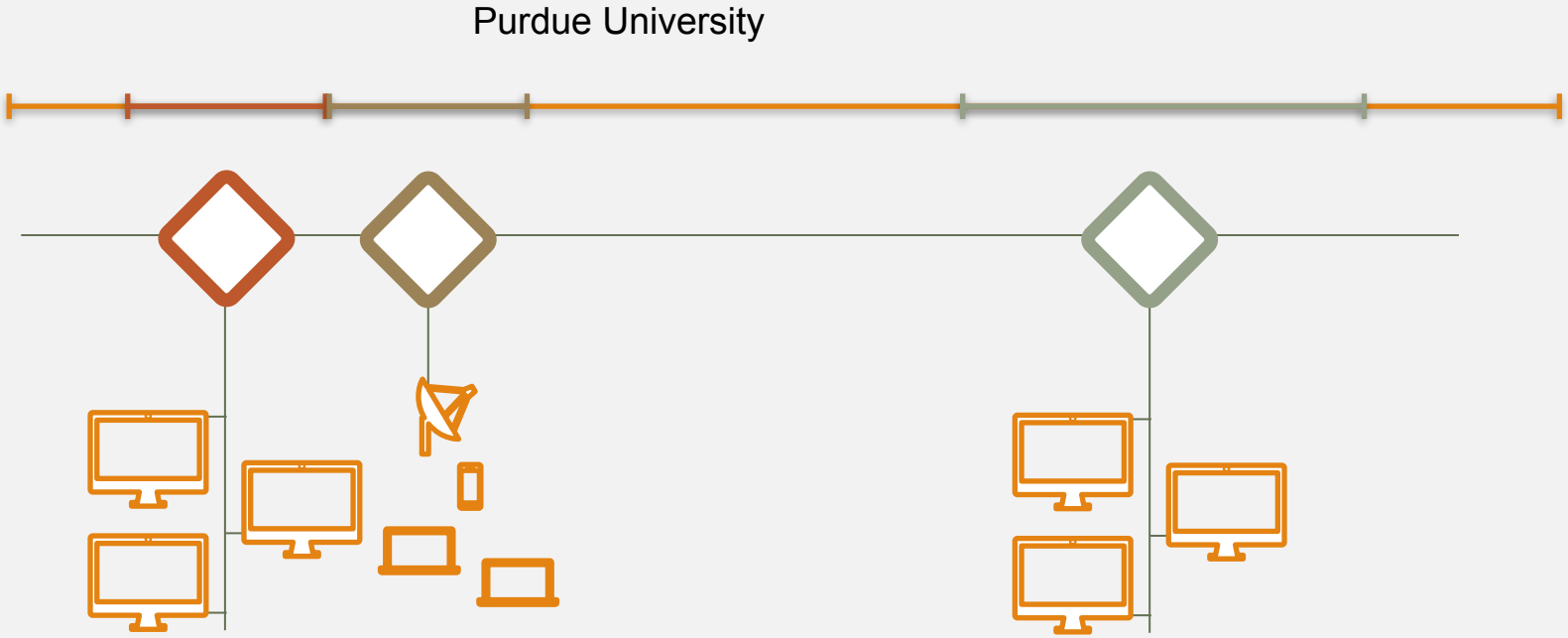

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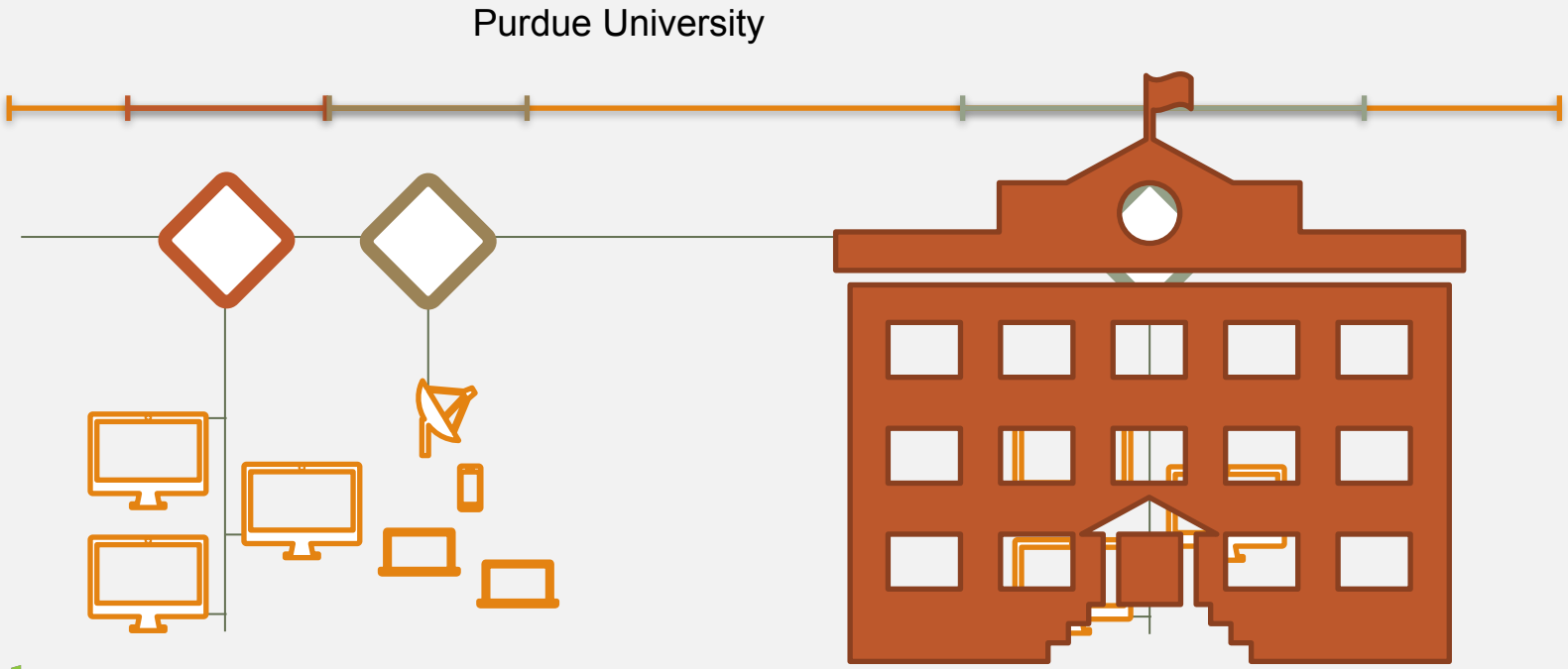

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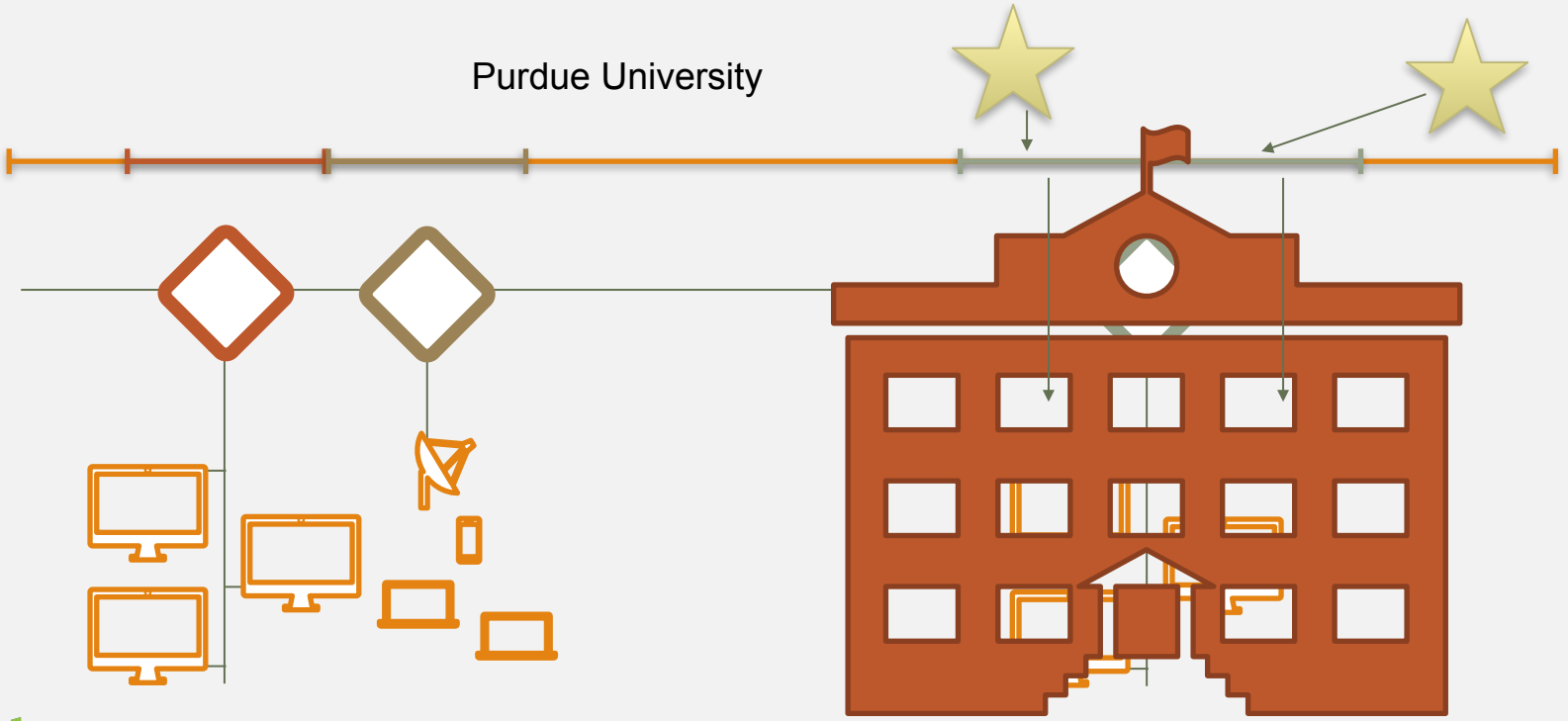

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Build a “heatmap” in time & space

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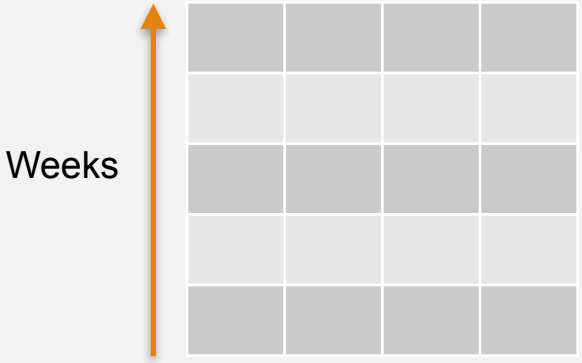

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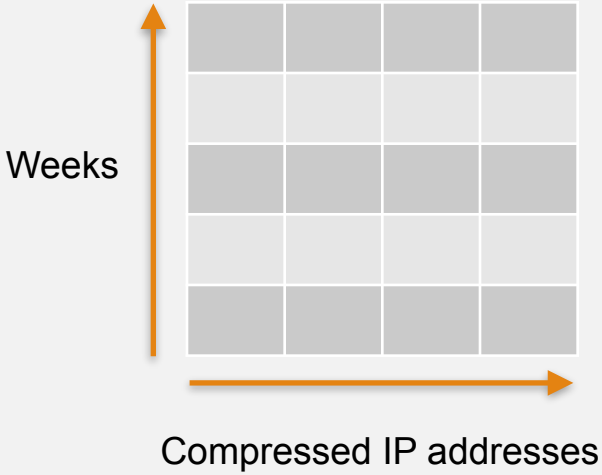

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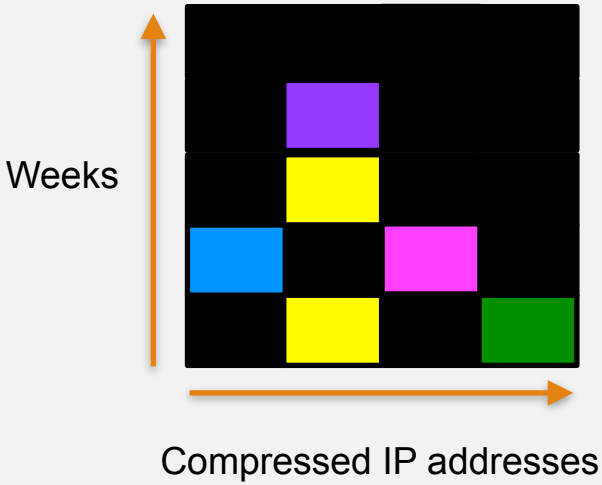

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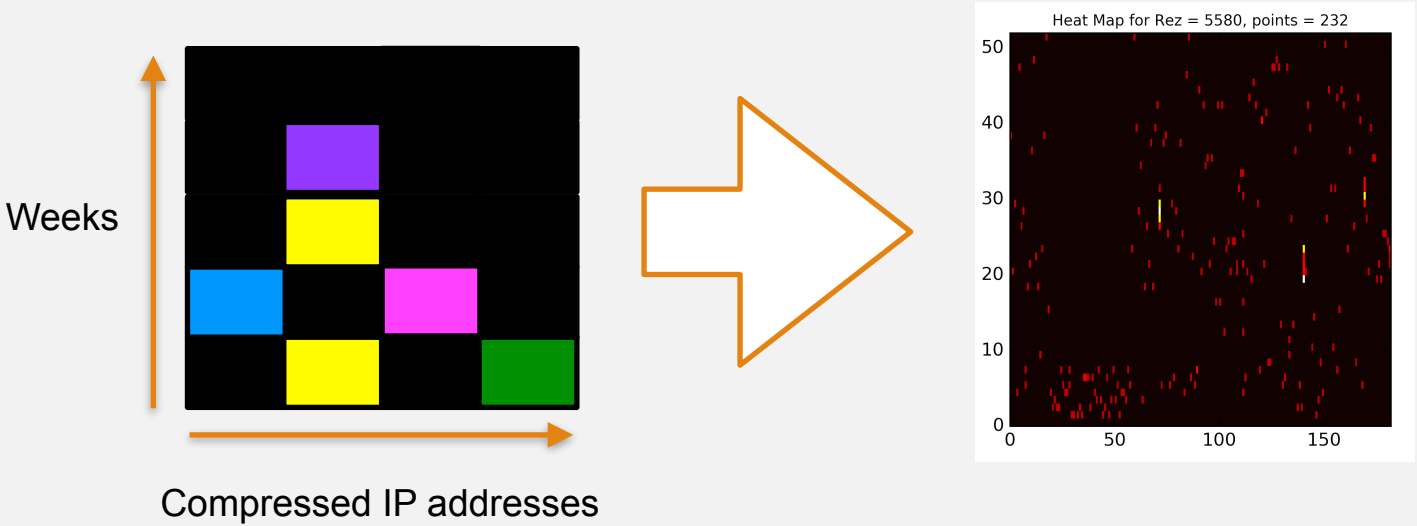

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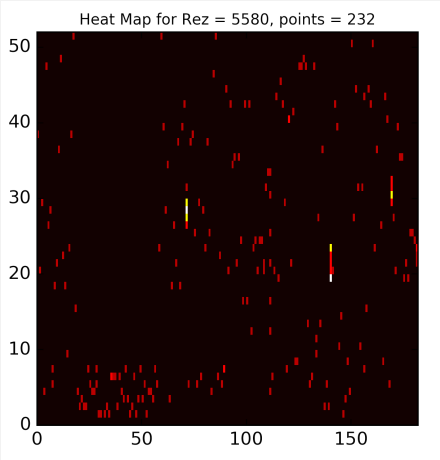
Identify clusters with DBSCAN



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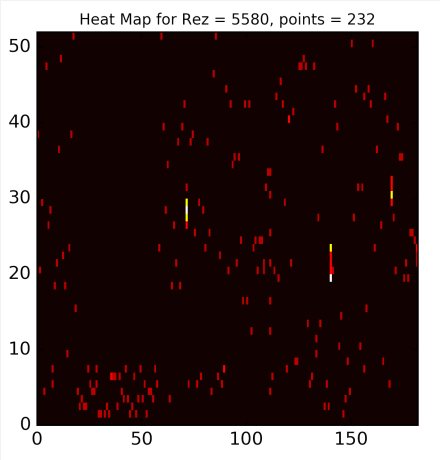

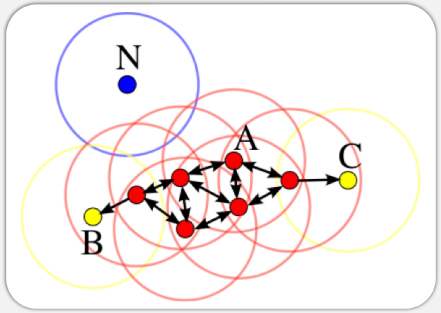

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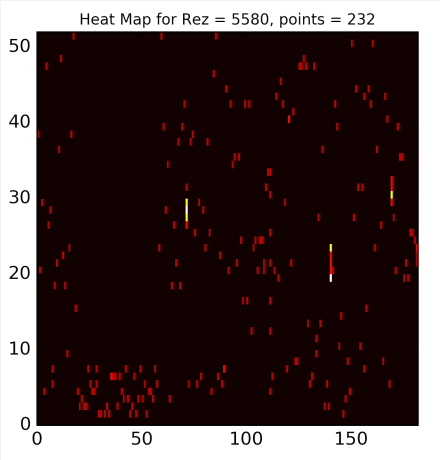

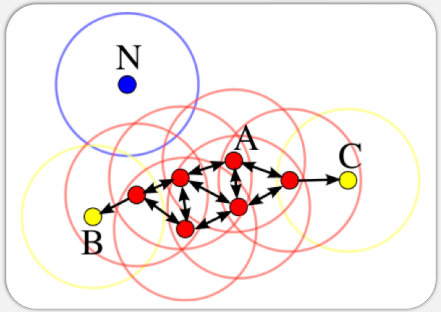

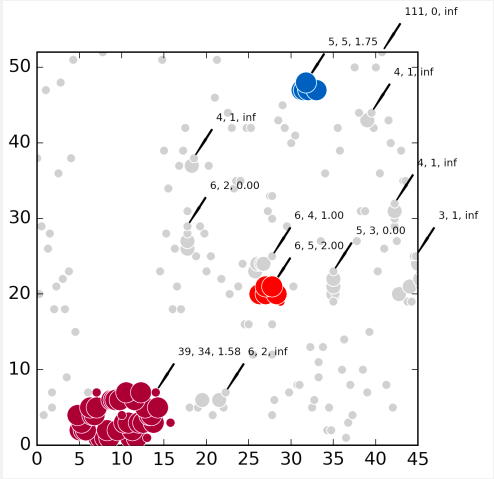

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- 112,290,752 event records
- 2353 classroom clusters detected
- 1460 (23.2%) content items had at least one cluster
- 6296 total content items

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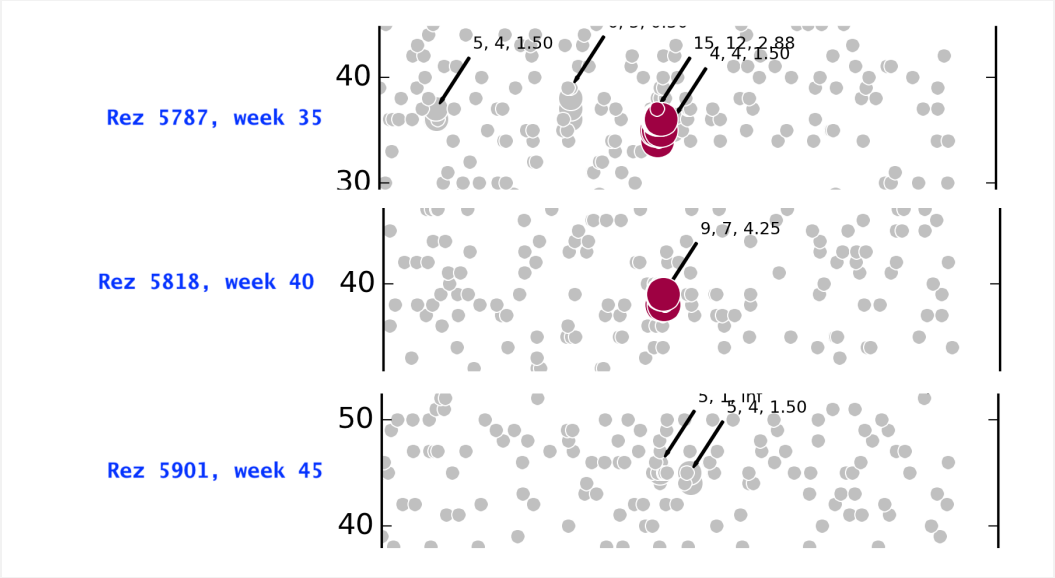

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Nothing’s perfect

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Nothing’s perfect

- IP Address “nearness” Issues
  - Mobile devices
  - Non-Physical classrooms
  - NAT

Q & A

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