# Analytics Customer Campfire Mini Series (Episode 19) Dashboard Performance


## (Level: Intermediate)

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# Dashboard Performance In Einstein Analytics


Analytics Expertise

Best Practices

Keep Calm - Calc On


## Abstract

"Learn how to design your dashboards and model your datasets for optimal performance. What traps to avoid and which tools and approaches to investigate issues and apply best practice solutions."


# Before You Start


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Best Practices

Keep Calm - Calc On

Save yourself a great deal of  pain and set expectations  by:

- Designing for performance as a priority requirement, not an afterthought.
- Build performance testing and criteria into the User Story; Point appropriately. Baseline perf tests so it does not become anecdotal.
- Don’t let features and functions get out there in the wild without first passing performance criteria.
- Think about future scale, if you are testing on smaller datasets.


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# The Anatomy of a Dashboard

Consider how a dashboard  works:

- Steps
  - Static
  - Query
- Widgets ( measure binding)
- Filters
  - Standard (selection)
  - Global (filter)

# Gathering Information


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Tools to inspect the dashboard and test speed:

- Chrome: Menu > More Tools > Developer Tools > Network Tab
  - See the waterfall showing the batches of six queries.
  - Type ‘query’ into the filter box , showing how many actual queries are invoked.
  - Consider how local cache works.
- EA Dashboard Inspector.
- <your org url>/speedtest.jsp

# Reduce Number of Queries per Dashboard


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Reduce the number of queries sent to the engine by:

- Think about the Use Case. Reduce the number of filters, visualizations to what is needed, think of the journey through the dashboards.
- Rationalize queries of the same filters and groupings.
- Reduce the need for results binding where you can by modelling  logic into the dataset.
- Replace selection filters that have start values , with either static or global filters. To prevent unnecessary query invocation.

# Improving Performance of Queries


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Best Practices

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Improve the execution time of the individual query by:

- Reduce the size (rows) of the dataset .
- Width and high cardinality fields do not have such an impact, but reducing number of fields in good practice.
- Filter pre projection.
- Change measure filters or range filters, into dimensions filters in the dataflow.

# Improving Performance of Queries


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Best Practices

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Improve the execution time of the individual query by:

- Use multi values for filtering only. No operations such as unique(multivaluefield).
- Push complex filter logic to dataflow where possible to create simpler flags, during query time. (Same goes for Security Predicates).
- When grouping, group on high cardinality fields first. You can rearrange post projection.
- Avoid matches, try to push to dataflow and have simple flags.

# Improving Performance of Queries


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Best Practices

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Improve the execution time of the individual query by:

- Avoid redundant filter logic.
- Try to avoid results binding on large numbers of values, this can lead to large ‘in’ statement: q= filter q by SomeDim in [ value1... value100 ,value 101] which can be too large for the payload particularly mobile
    - Model both datasets with augments of filters from each side using lookupMultivalue where necessary.
    - Dataset link the datasets for faster filtering.

# Improving Performance of Queries


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Best Practices

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# Improving Performance of Queries


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For large external data files, order the data to be uploaded by the most likely group by, or filtered value:

- For example if you wish to show timeline trends, order the upload data file by the date to be grouped by in chronological order.
- Or order the data file by the most likely first few filters for example Region then Country

This is in readiness for the upload so that the index process produces the most optimized byte code for those queries

# Improving Dataflow Performance


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If composite keys are used in augments, then you can create one key value which is a concatenation of the composite keys and just join on that. It is better to do this on extract of the source data where possible

# A Reminder


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Reiterating:

- Tackle performance requirements early.
- Don’t just chase features in sprints to show ‘progress’. Your end users will not thank you.
- Rework is always more expensive than tackling these issues early.
- Think about future scale, try to get access to larger datasets early.
- Fixing performance is not a bug, it should be part of every user story.

# Thank You


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