Apache Metron
Lessons Learned

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Hi, I'm Casey Stella!

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- Metron graduated to a top level project in April 2017

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  - Enrichments can be composed through a domain specific language called **Stellar**
- Data stored in HBase can be the source of enrichments

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  - Models can be deployed using Yarn, autodiscovered via Zookeeper and interrogated via Stellar functions

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Metron needed the ability to allow users to pluggably and consistently enrich and transform streaming data. Out of this need, we created **Stellar**:

- Interact with the various enabling Hadoop components in a unified manner
- Compose a rich set of built-in functions with user defined functions
- Provide simple primitives around the functions: boolean operations, conditionals, numerical computation.

Think of Stellar as Excel functions that we can run on streaming data.

```
window := PROFILE_WINDOW('...')
profile := PROFILE_GET('attempts_by_user', user, window)
distinct_auth_attempts := HLLP_CARDINALITY(GET_LAST(profile))
distribution_profile := PROFILE_GET('auth_distribution', 'global', window)
stats := STATS_MERGE(distribution_profile)
distinct_auth_attempts_median := STATS_PERCENTILE(stats, 0.5)
distinct_auth_attempts_stddev := STATS_SD(stats)
```

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  - Storm's abstractions are sufficient to solve the business problem in a linearly scalable manner

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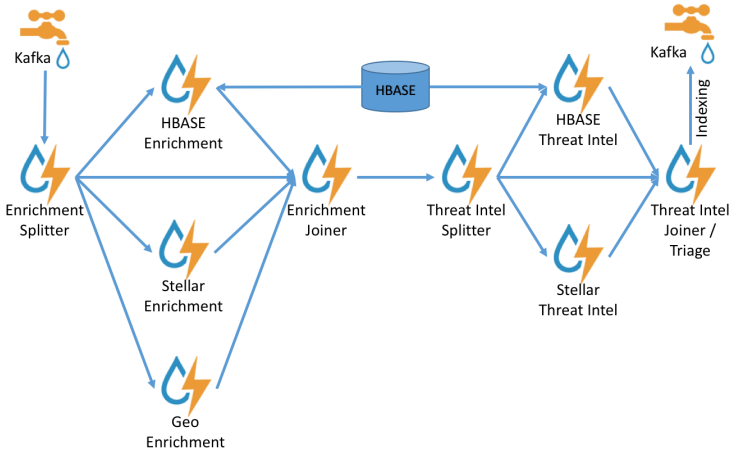
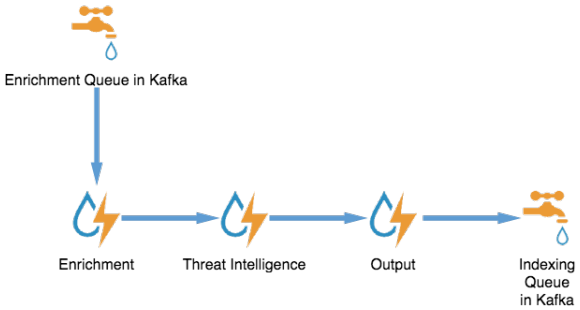
- Understand the cost of the operations that you depend on
- What can seem perfectly logical on the whiteboard can be a dog on the cluster
- Even so, swapping out technology almost always just shuffles problems around.

Enrichment: Old & Busted



Enrichment: New Hotness



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- Pretty much immediately we were asked to rerun data in batch

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- Streaming analytics, marriage and diplomacy are exercises in compromise.
- Effective streaming analytics is about bringing to bear as much context into the data streaming by as you possibly can computationally. Find compromises accordingly.

Questions

Thanks for your attention! Don't forget to come to the cybersecurity Bird of a Feather session Thursday.

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