

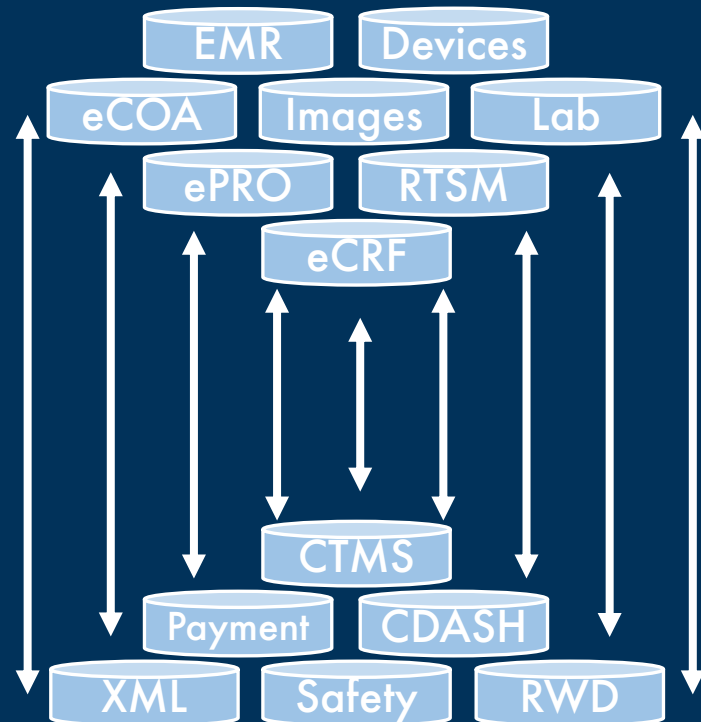
# Connected Monitoring

Paper CM02

Mike Henderson

**Technology should  
enable workflow by  
connecting systems and  
analytical methods**

## Collect

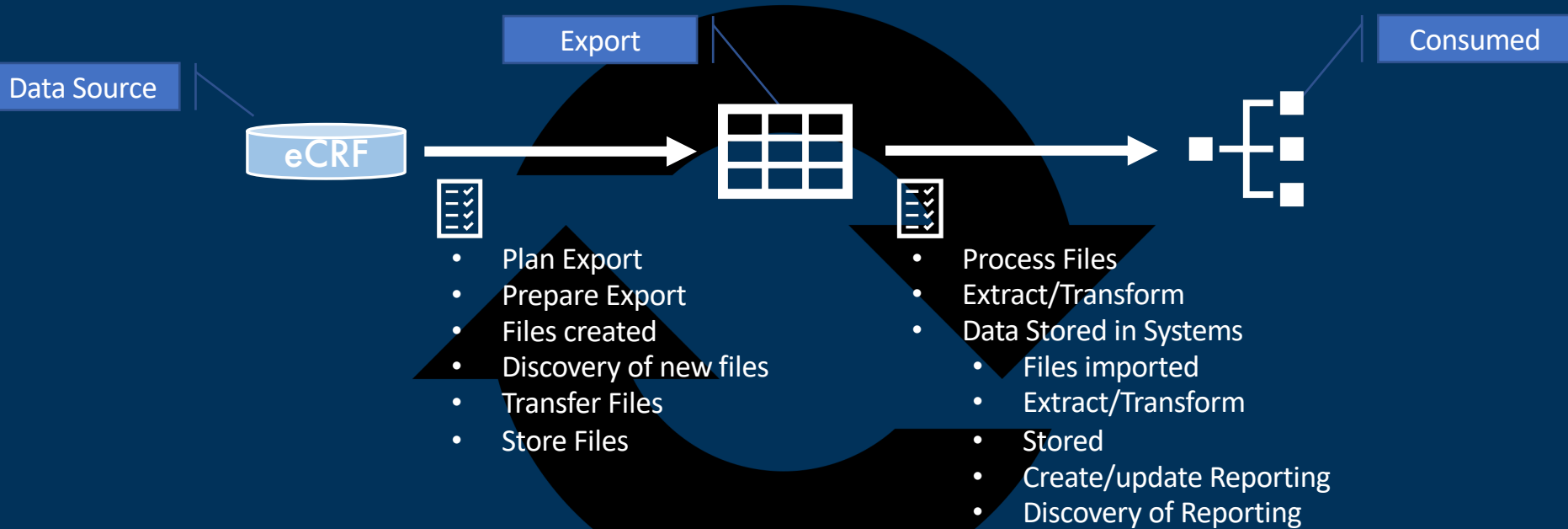


## Design / Build / Conduct

## Manage / Analyze / Report

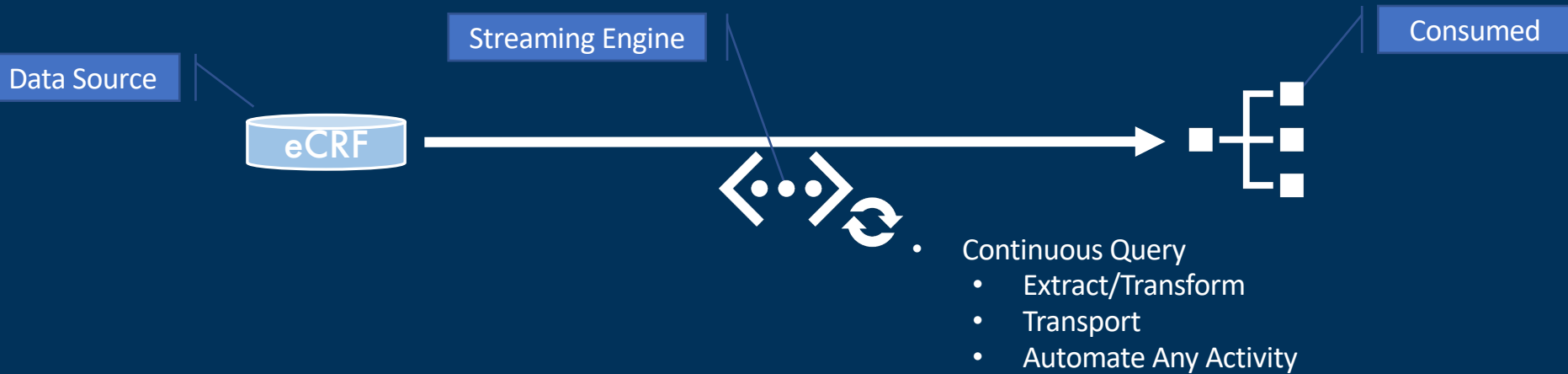


# Common Data Source Layout



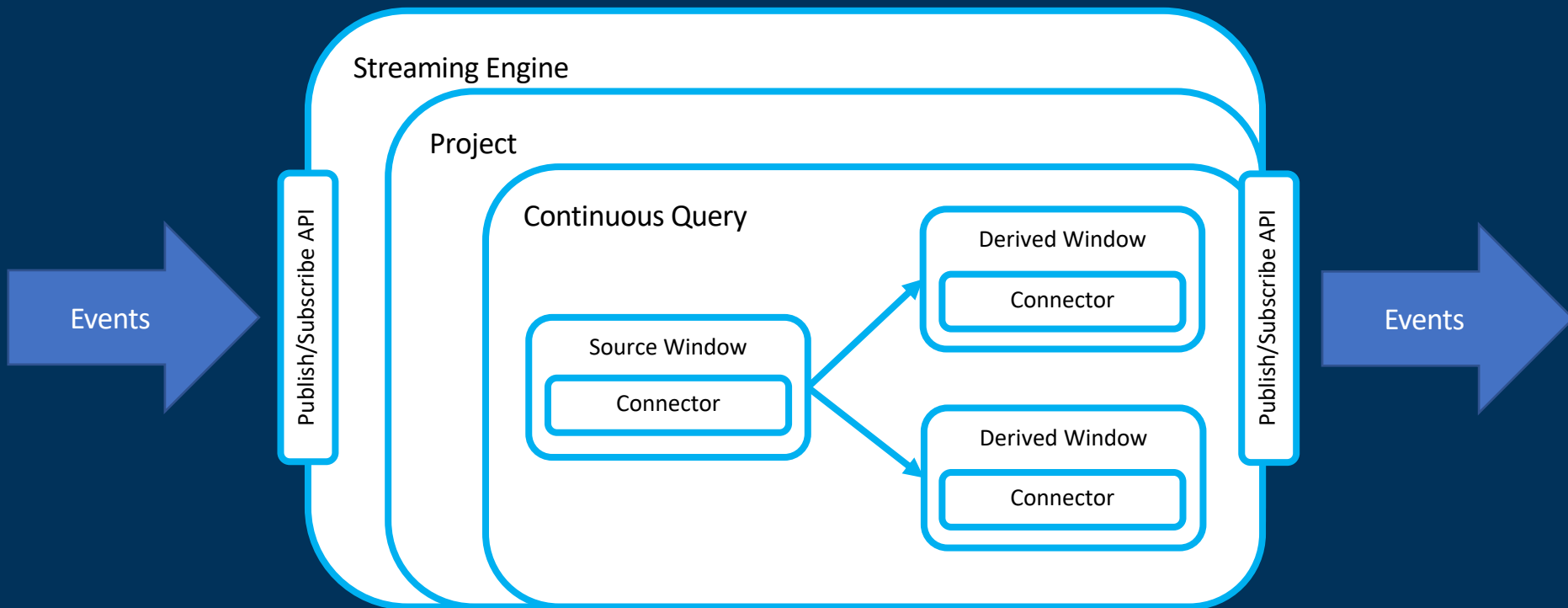
## Common Data Source Workflow



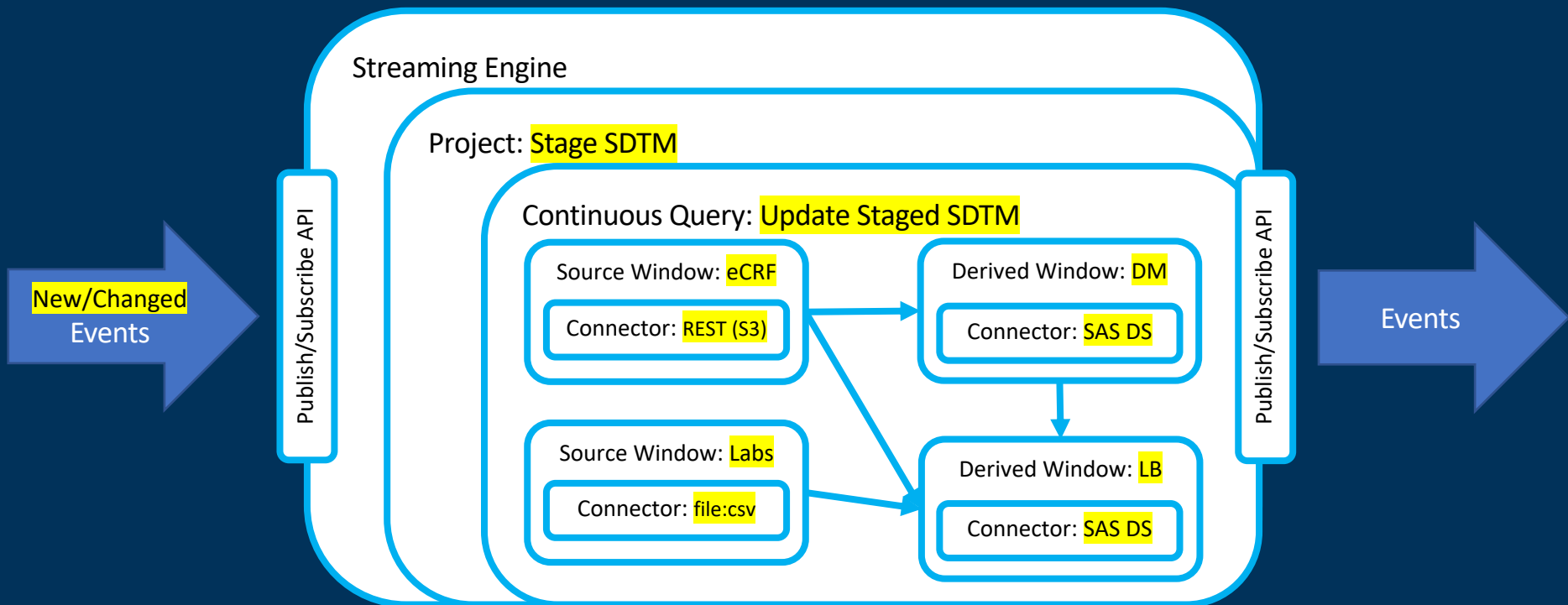


## Proposed Data Source Workflow

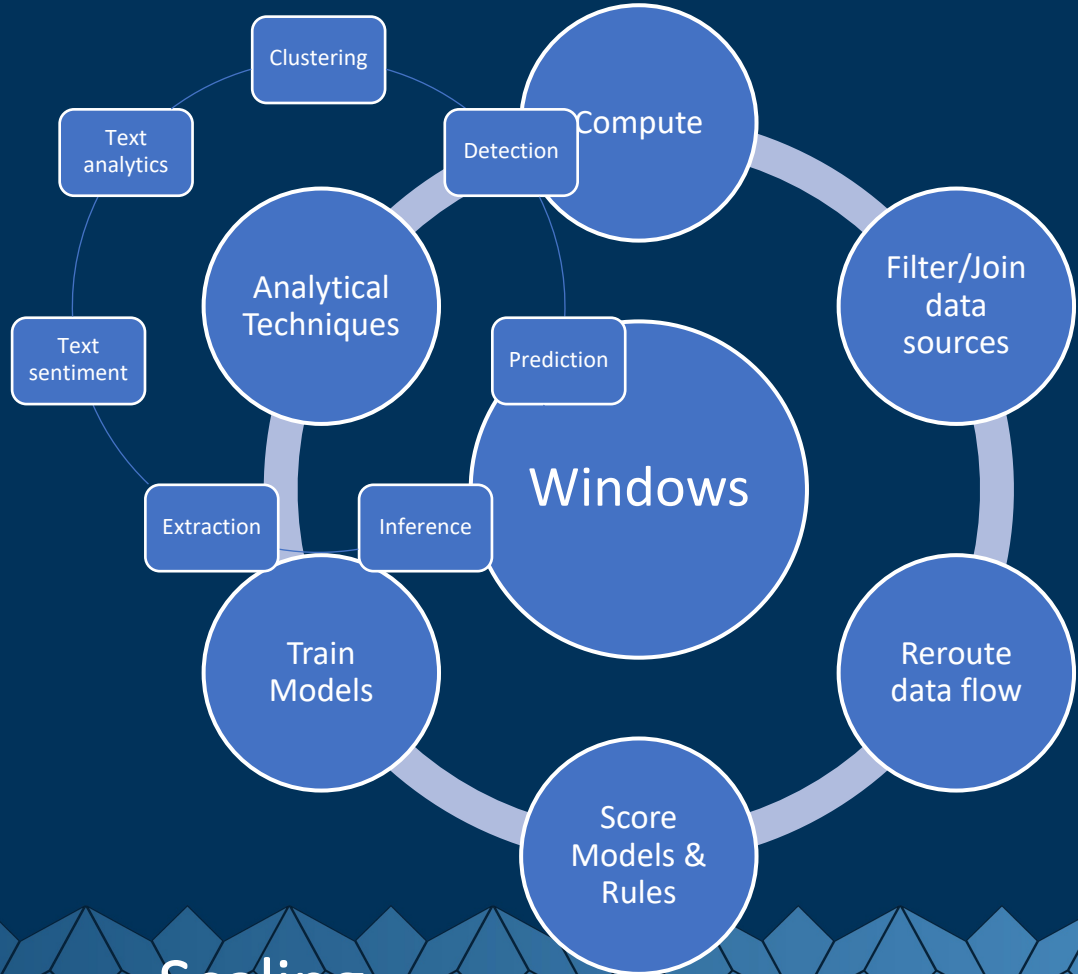
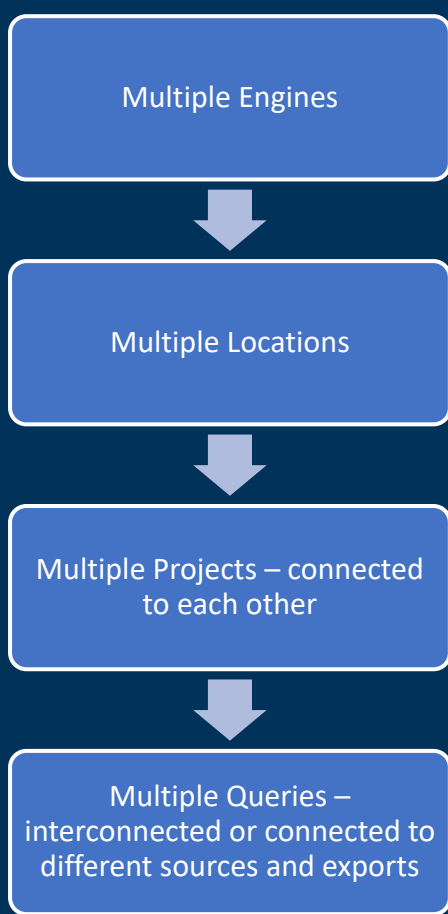




# Streaming Concepts



# Streaming Concepts: Simple Applied Example



# Scaling

## Automate

- Continuously updated SDTM
- Automatically update dashboards
- Make changes to components and assess impact
- Automate risk alerts with low latency
- Setup new trials with the same system

## Apply

- Manage rules in a decision engine
- Deploy new rules and see impact on prior data
- Turn queries into new rules – query association
- Manage alerting by grouping and controlling delivery
- Make additional data available without setting up new data stores or copying information

## Advance

- Centralize Edit Checks
- Dynamic edit checks including rules and machine learning models
- Adaptive edit checks – use real-world data cohorts to derive anticipated value
- Real-time anomaly detection: Kalman filter, isolation forest, ...
- Give feedback to clinical staff at patient and visit level
- Automate adaptation rules
- Apply analytics to high frequency data from patient monitoring devices
- Turn text into topics and alert based on risk – at the time of entry

# Applications



# Thank You!

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<https://www.linkedin.com/in/statmike/>



<https://www.statmike.com> (Slides to be posted)



<https://www.github.com/statmike>