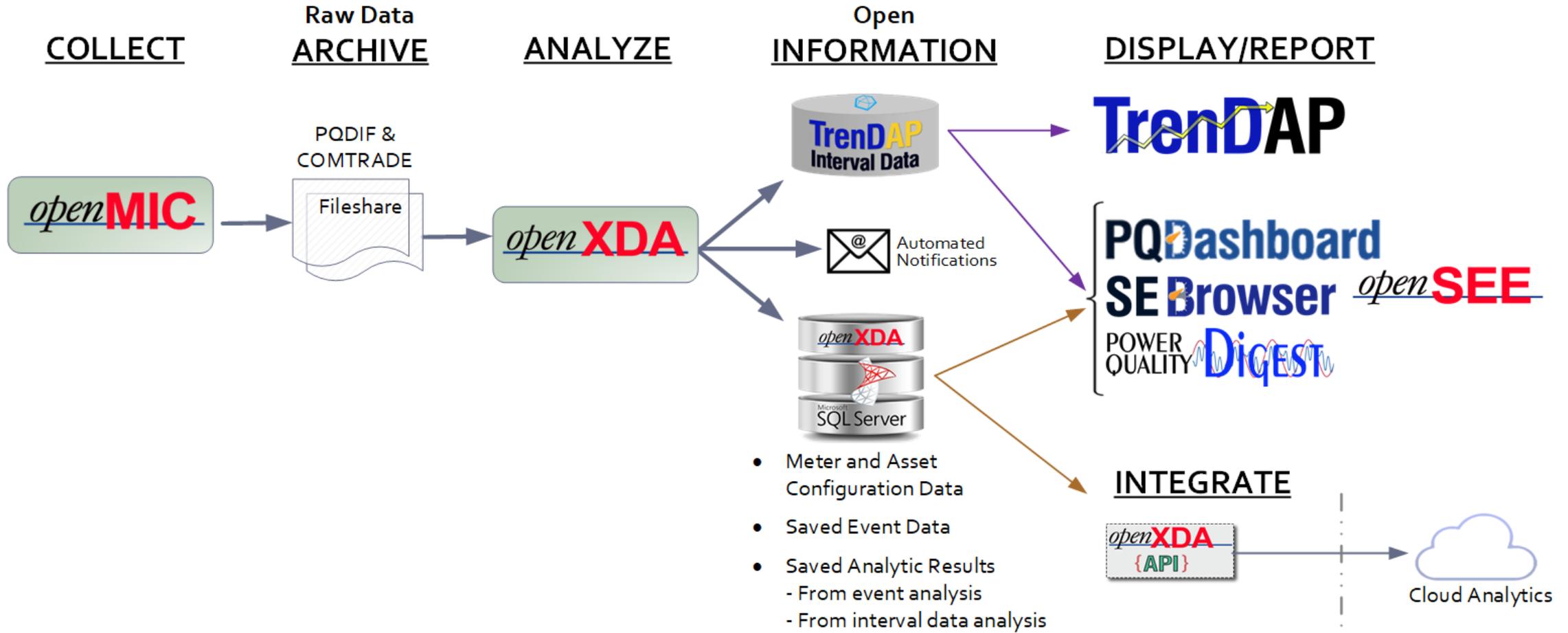


Billy Ernest

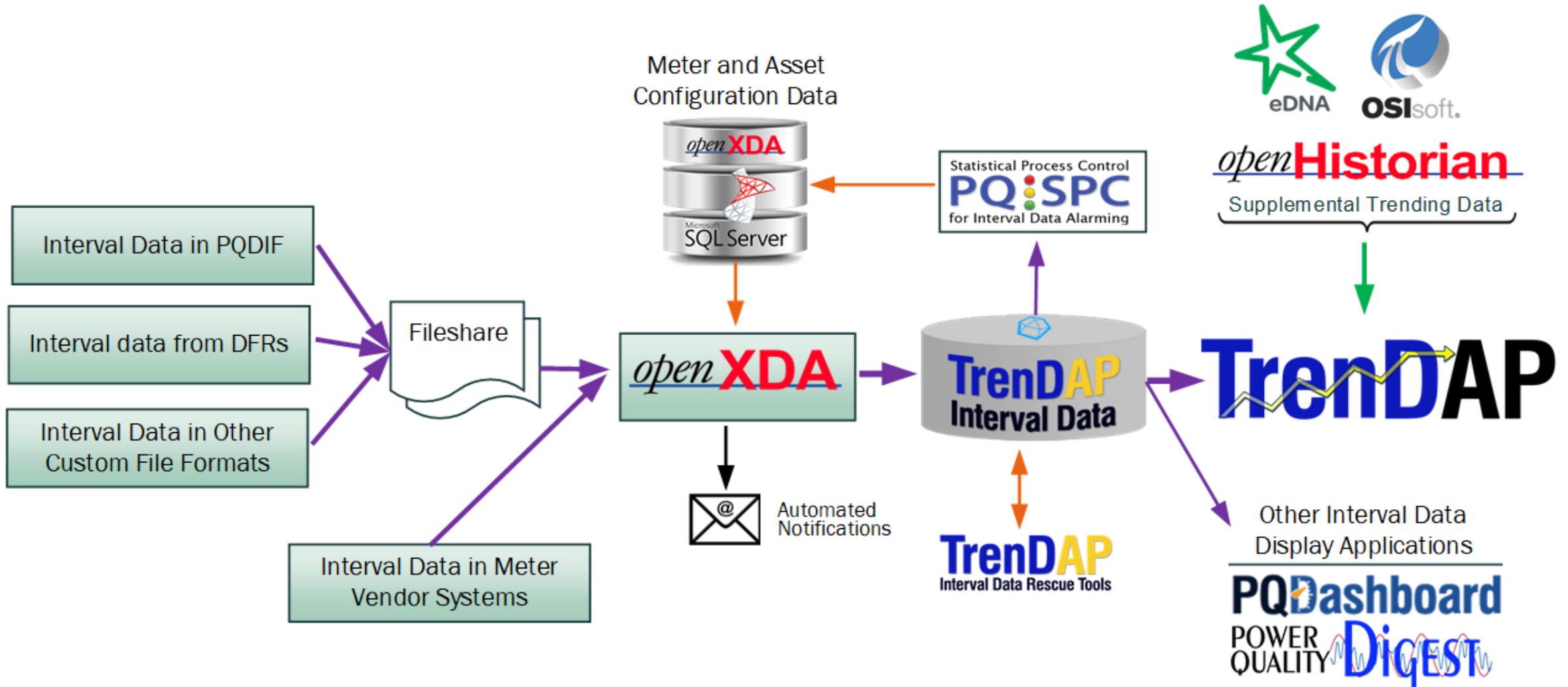
PQ Dashboard User's Group - 2021

TrenDAP Demo

High-Level Data Flow



TrenDAP Data Flow



Development Challenges

- Performance at Scale
 - number of meters
 - volume of data from a meter
- Development for a Browser
 - Performance
 - Maximum data volume

Key to crisp browser rendering of data is to load the data set first, then operate on it.

TrenDAP Handles Two Types of Data

- TrenDAP is optimized to display **interval data** that is collected by PQ Devices – a tuple (min, max, average) typically collected every 10 min
 - The source of this interval data is the TrenDAP database that has been processed by openXDA
 - TrenDAP can handle “instantaneous” (top-of-the-interval) values collected at the same periodicity by using the average
 - The minimum interval supported by openXDA processing is 1 minute
- TrenDAP can also display **trending data** from other data sources. Trending data is single-valued periodic data such as 4-second Transmission SCADA data that is stored in a historian.
 - Currently this external data is not connected to the openXDA asset model
 - There are no plans for external data to be processed by openXDA so that openXDA bad data detection and/or alarming can be applied to this data

TrenDAP Workflow

- Define Data Sources
 - TrenDAP database for interval data
 - Other sources for trending data
- Establish Data Sets
 - Can use an existing one – or create a new one
 - Can include one or more data sources
 - For a specific **time-range** of interest, for a specific **collection of values** from each data source, and for a selected **aggregation period**.
- Chart / Display Data in Widgets in a Workspace
 - Can create multiple workspaces per data set
 - Multiple display widgets are currently available
 - The library or widgets is expected to grow significantly

The Main Display

- Browser-based
- Simple Navigation
- Data Source
- Data Set
- Workspaces
- Recent Workspaces

■ Open Workspaces as Tabs



■ Multiple rows of one or more Widgets in a Workspace



GPA **TrenDAP** Demonstration