

Extracting Value Through the Entire Development Cycle Using NI's ASAM ODS Solution

Brad Turpin, Ph.D.

Senior Product Support Engineer

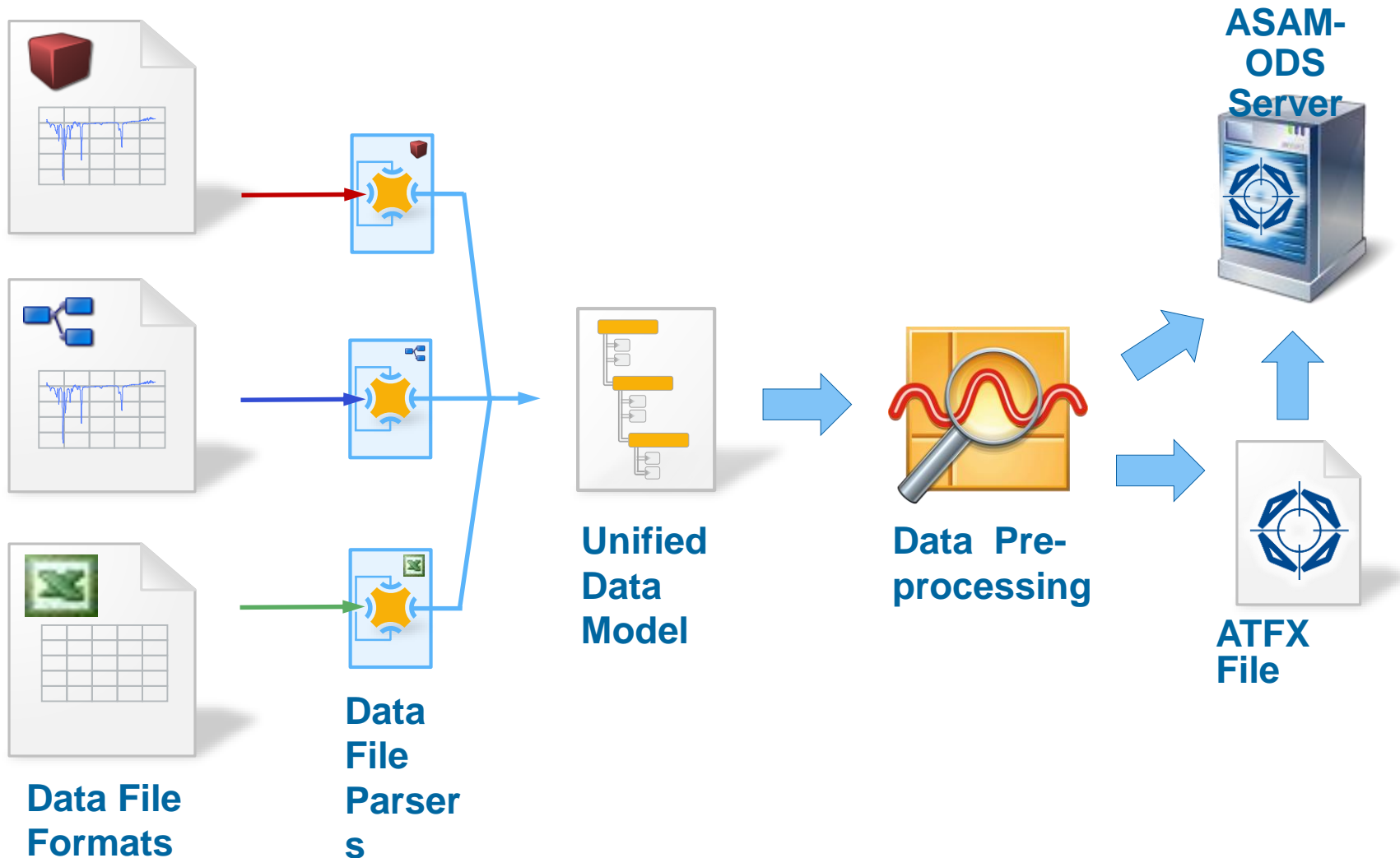
National Instruments

Agenda

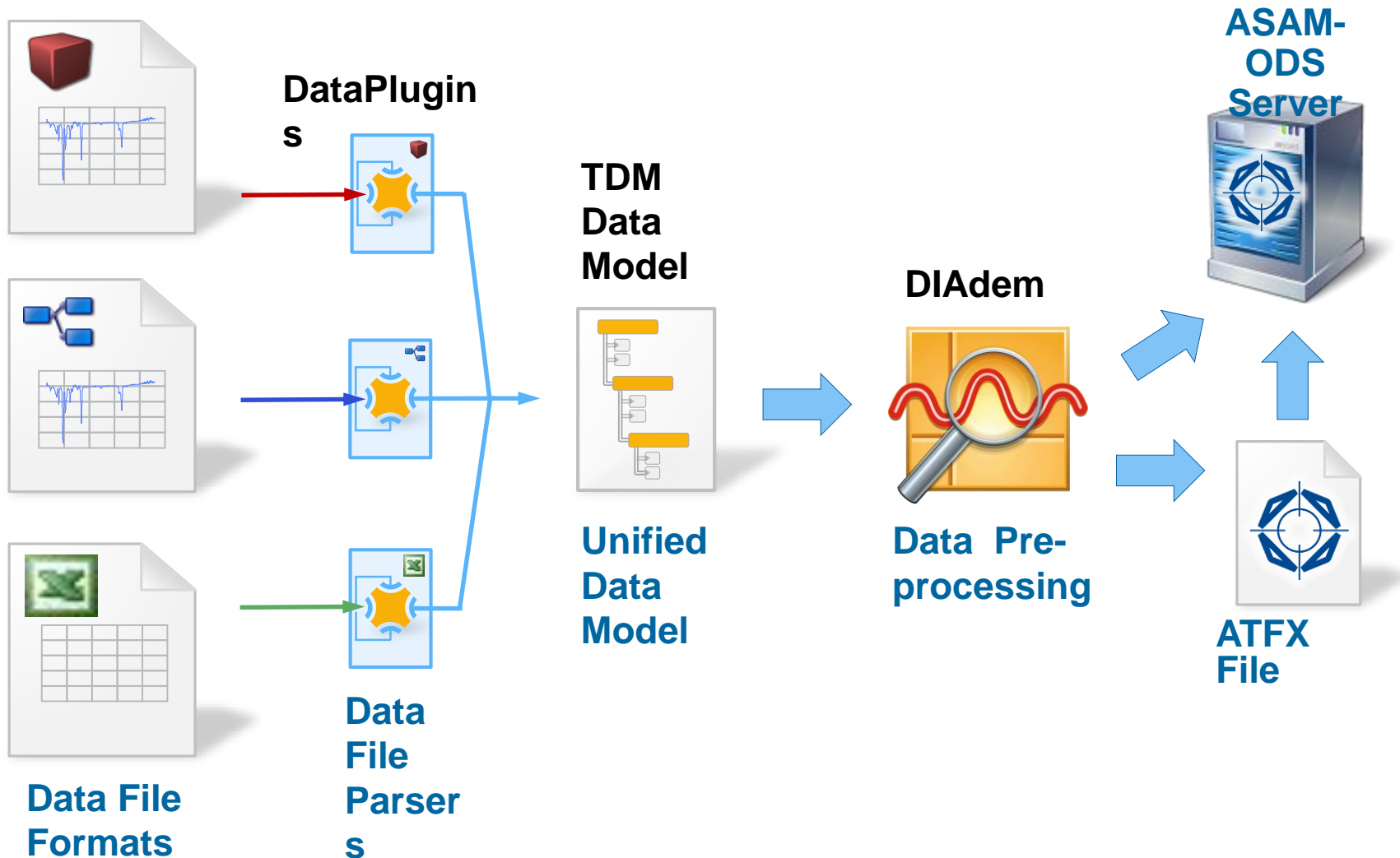
- Logical stages of populating any ASAM-ODS data base
 - Parse all the data file types..... (DataPlugins)
 - Unify pre-processing data model..... (TDM Data Model)
 - Run pre-processing analysis..... (DIAdem)
 - Export clean data to ASAM-ODS/ATFX.... (DIAdem)
- NI DataFinder ASAM-ODS Server
 - Unique Benefits
 - Performance Use Cases

ASAM-ODS Data Base

Logical stages of populating any ASAM-ODS data base

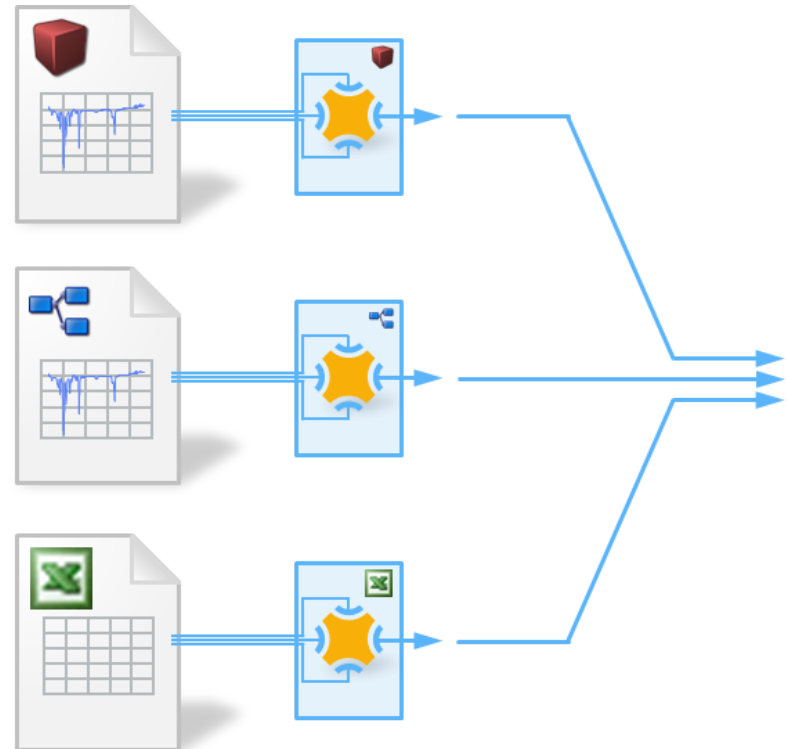


NI software populating any ASAM-ODS data base



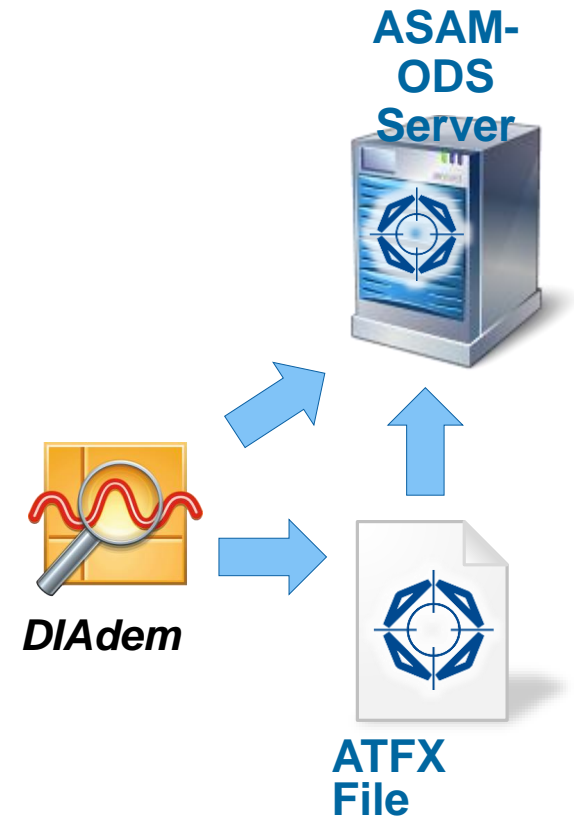
DataPlugins Parse Data Files to the TDM Model

- 300 standard file format DataPlugins created by NI and free to download
- 700 customer format DataPlugins created by NI
- Additional custom format DataPlugins created by customers
- VBScript DataPlugin API
- LabVIEW DataPlugin API
- C++ DataPlugin API

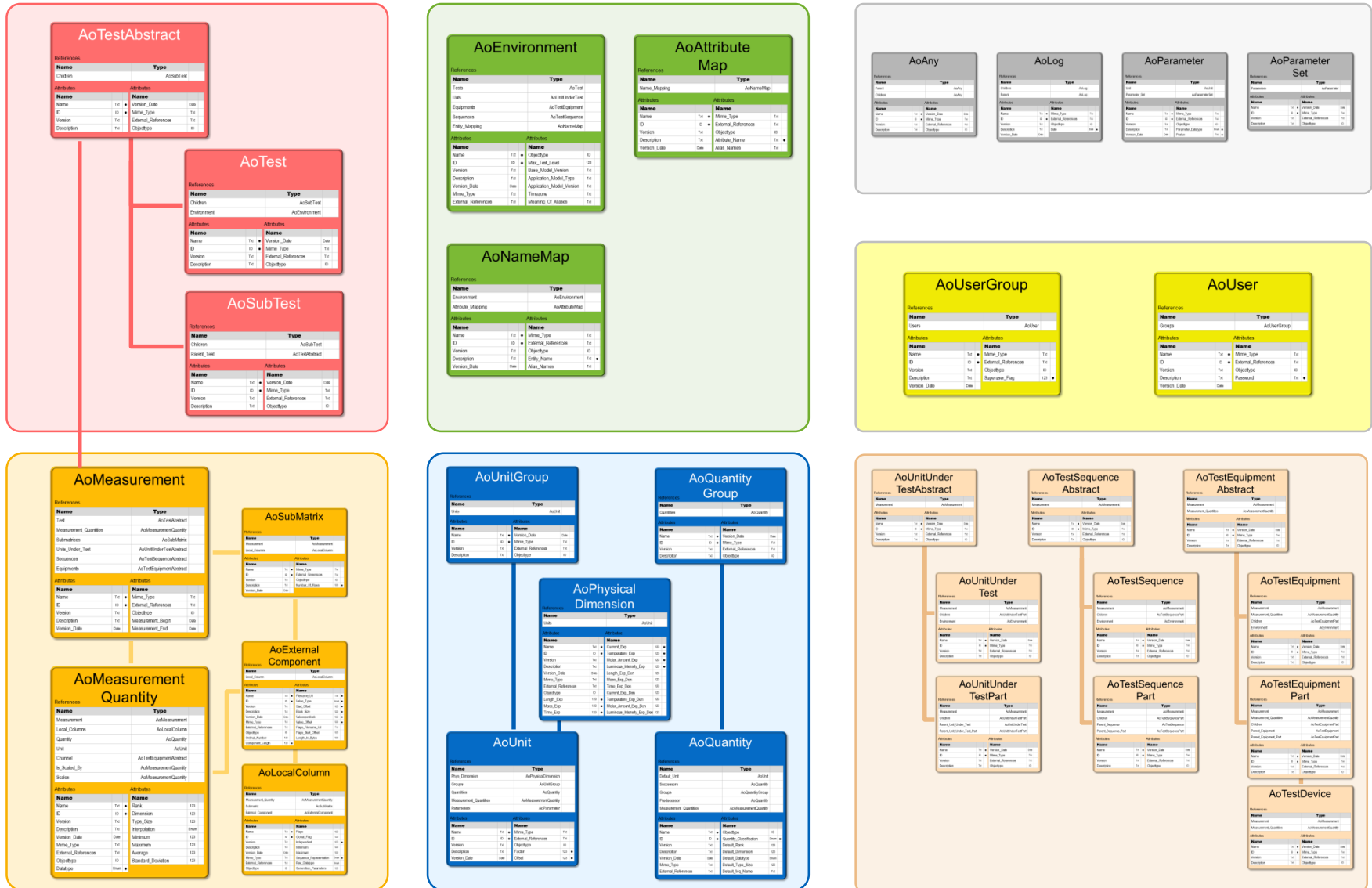


DIAdem Pre-processes Data for Upload to ASAM-ODS

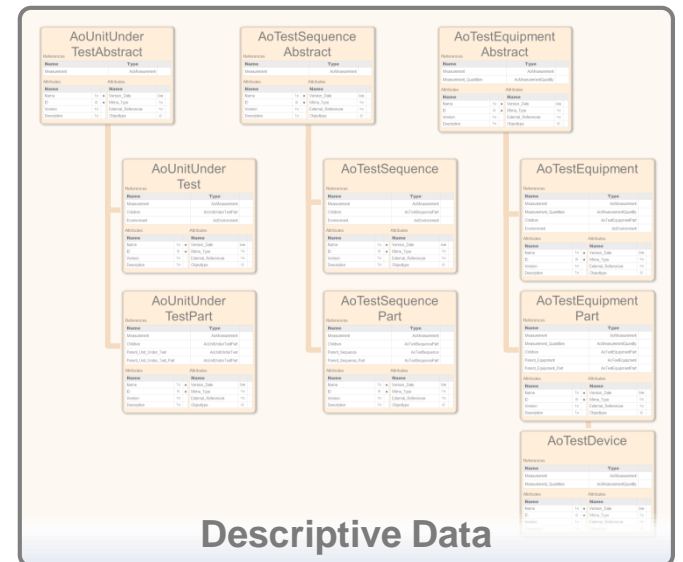
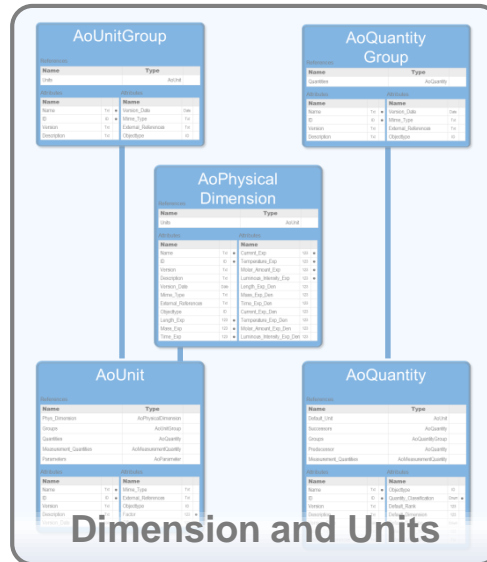
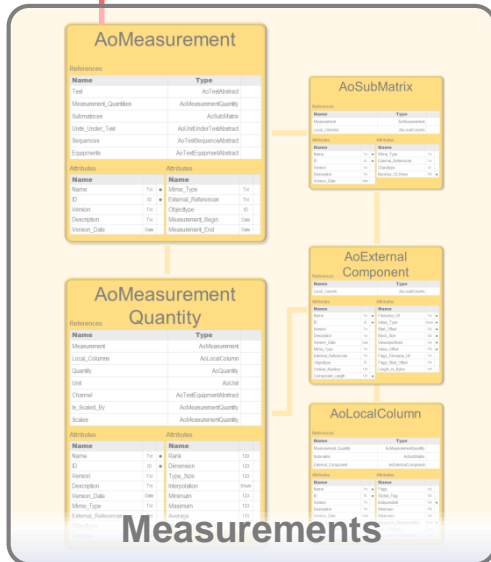
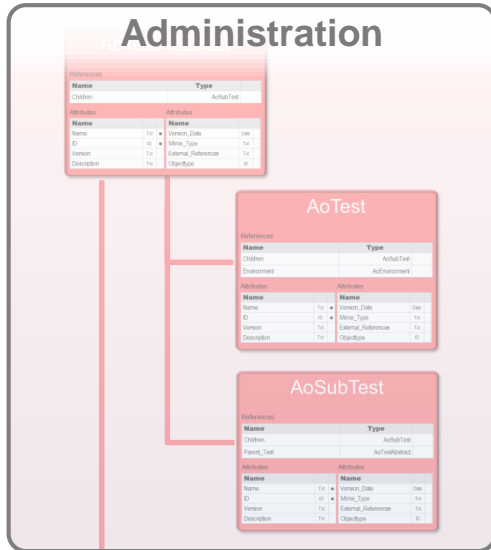
- Name mapping
- Converting engineering units
- Correcting time offsets
- Resampling
- Flagging invalid data
- Calculating formula channels
- Calculating scalar metrics
- ASAM-ODS export (usually ATFX)



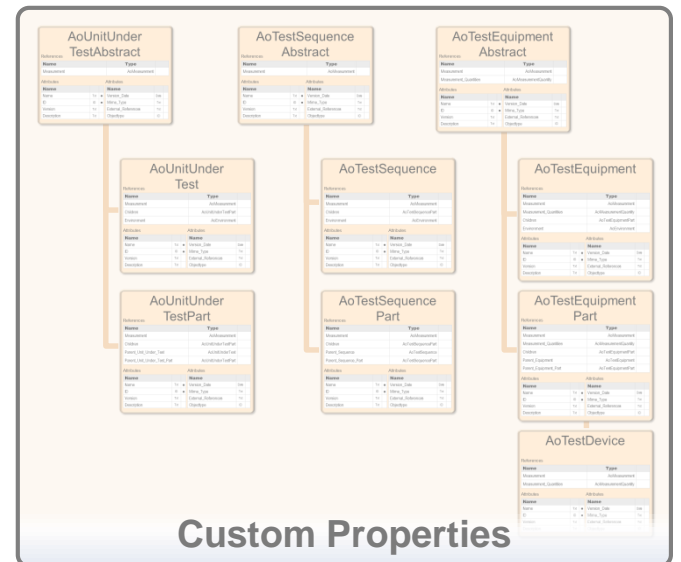
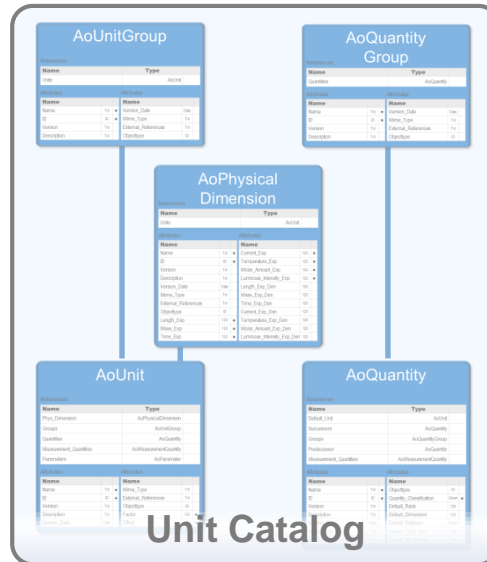
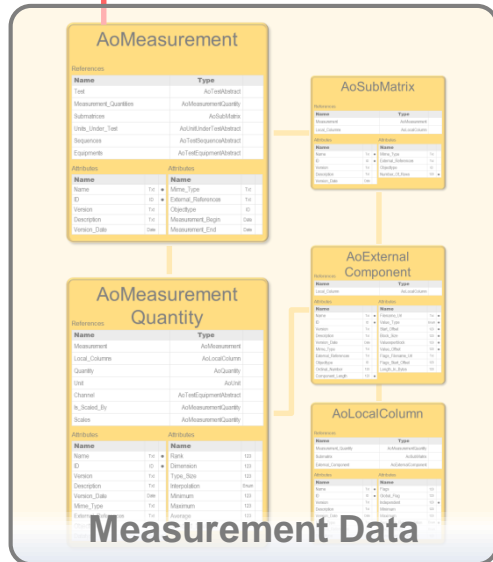
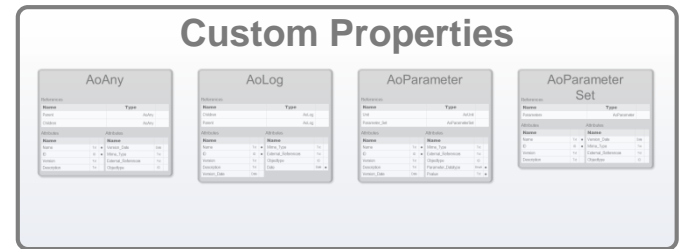
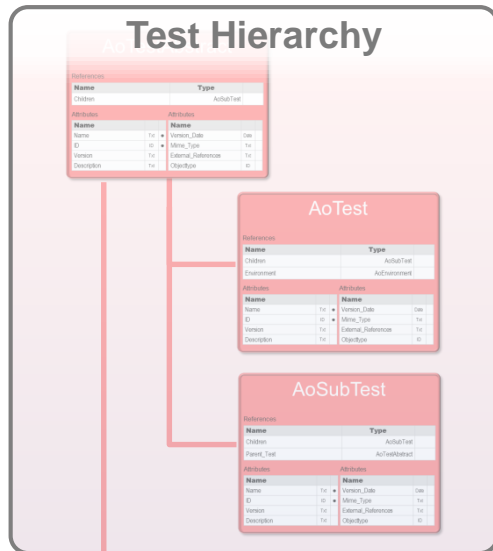
ASAM-ODS Base Model Building Blocks



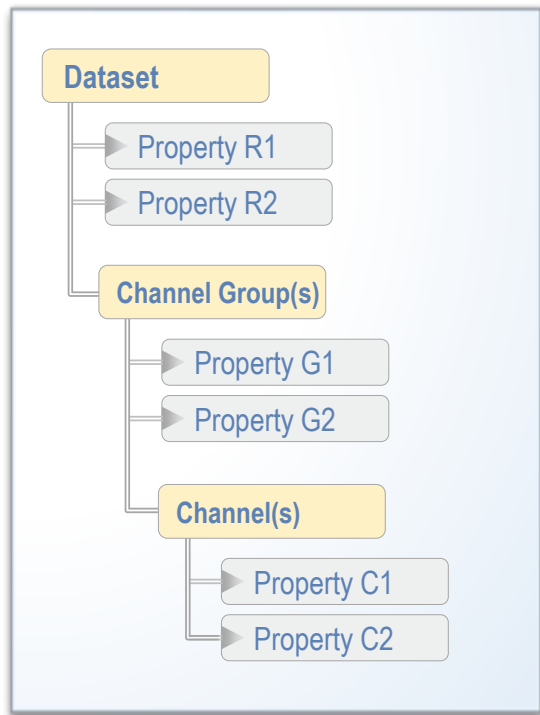
ASAM-ODS Base Model by Function Group



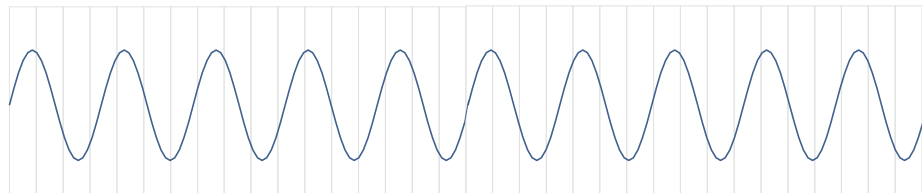
Mapping the ASAM ODS Base Model to the TDM+ Model



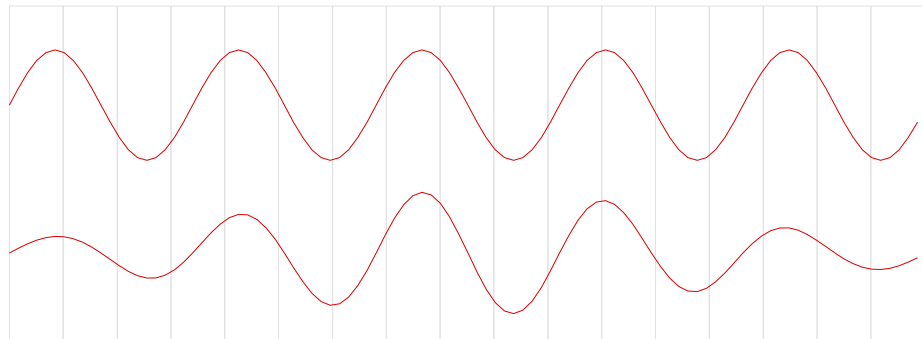
National Instruments TDM Data Model



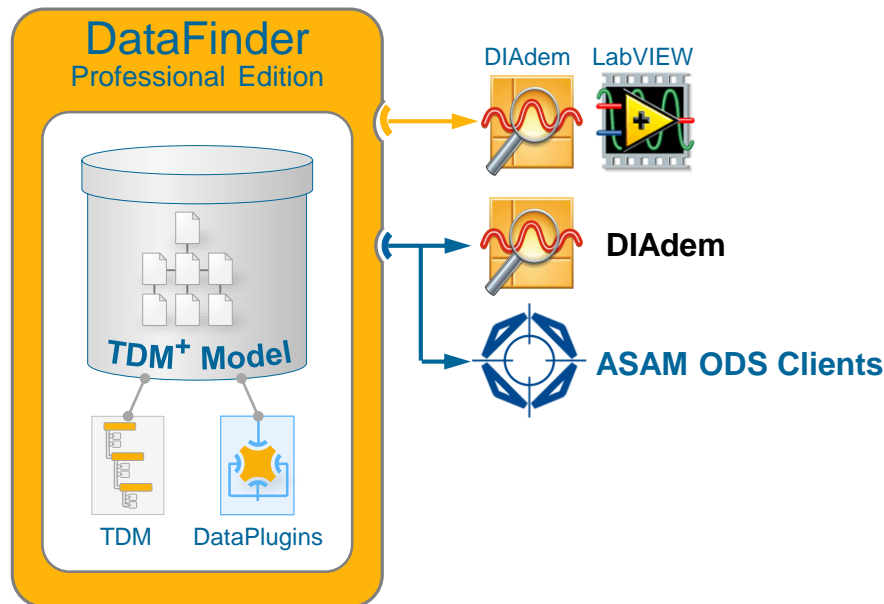
Group1



Group2



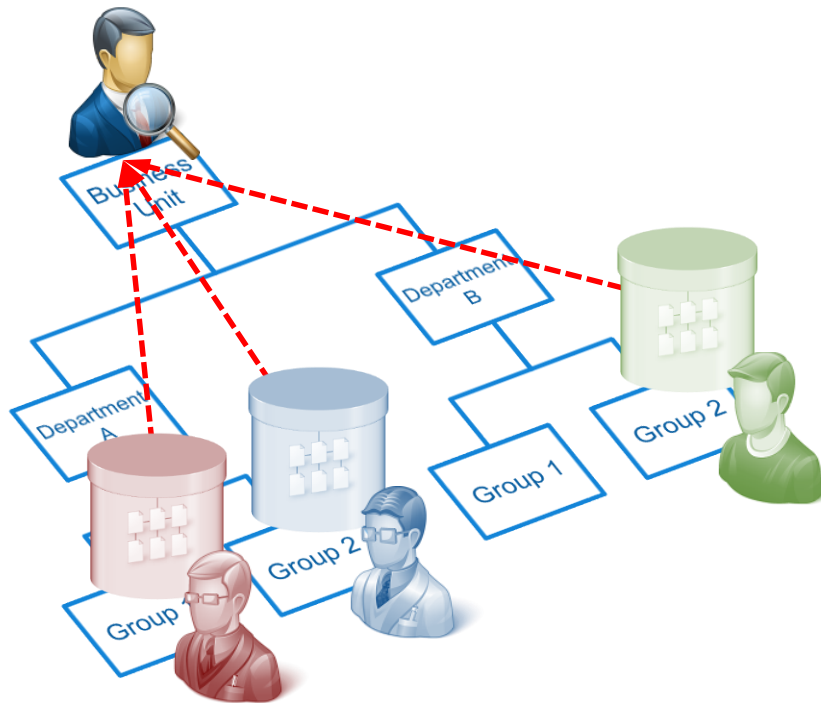
NI DataFinder ASAM-ODS Server



- Mixed Mode storage
- Works with all data files readable by a DataPlugin
- TDM+ Data Model
- Parametric Search
- Full-text Search
- Self maintaining data base
- Automatic uploading of pre-processed data
- Active Directory (LDAP) security
- Single Sign On (SSO)
- Database Federation

ni.com/datafinder

Merging Data from Different Locations



Most of the time data is produced and consumed only within a group.

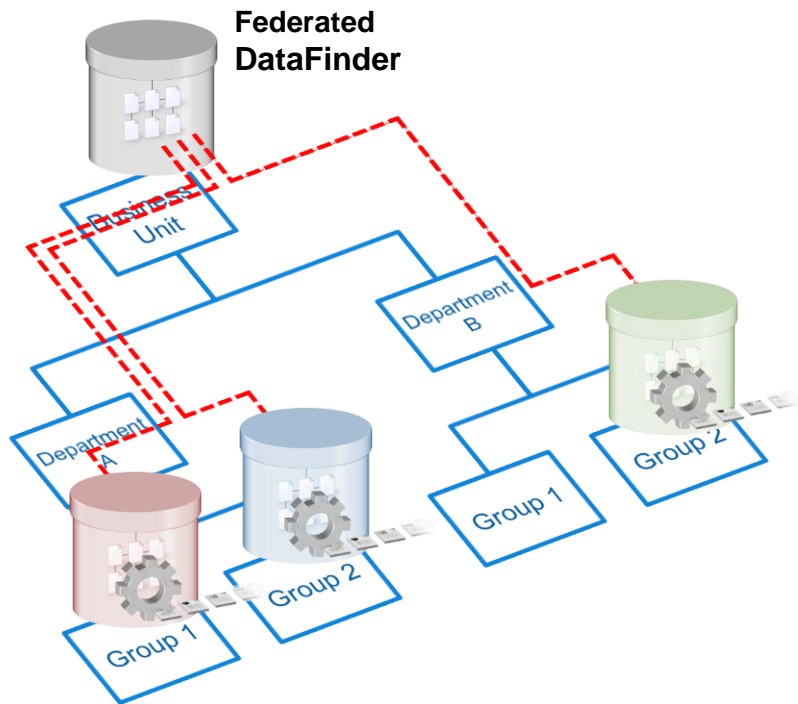
Sharing data across groups is not an every day task.

Often the initial cost and projected maintenance of migrating all data into one storage is prohibitively expensive.

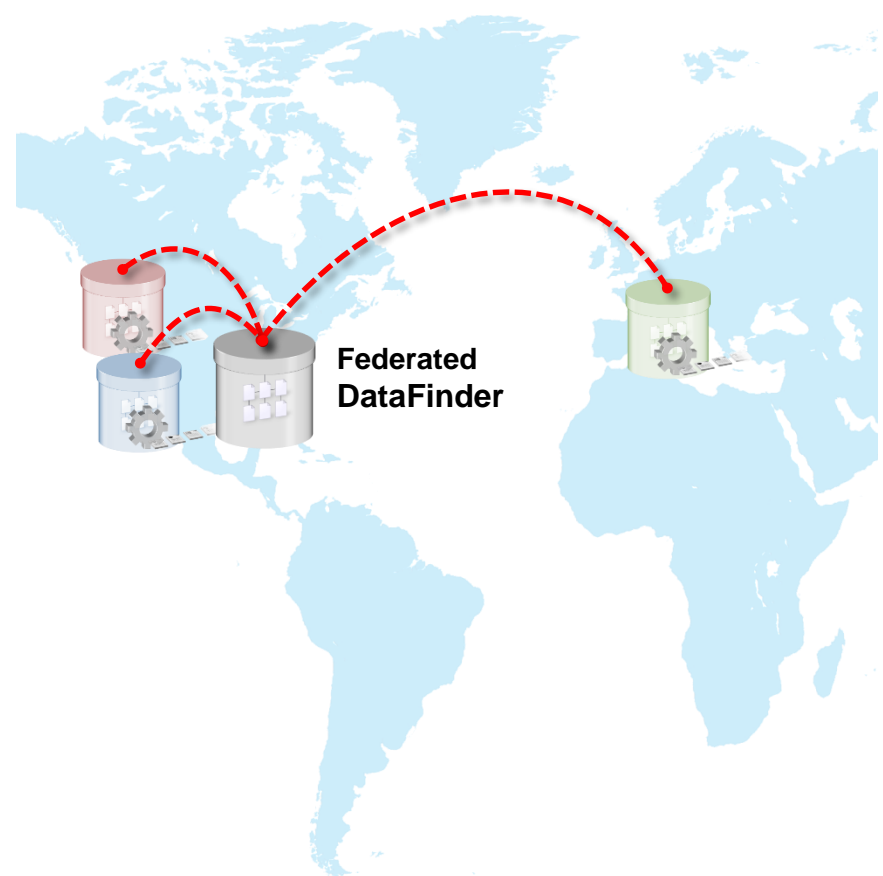
Yet there is still a strong business need to occasionally compare data across groups.

DataFinder ASAM-ODS Server with Federation

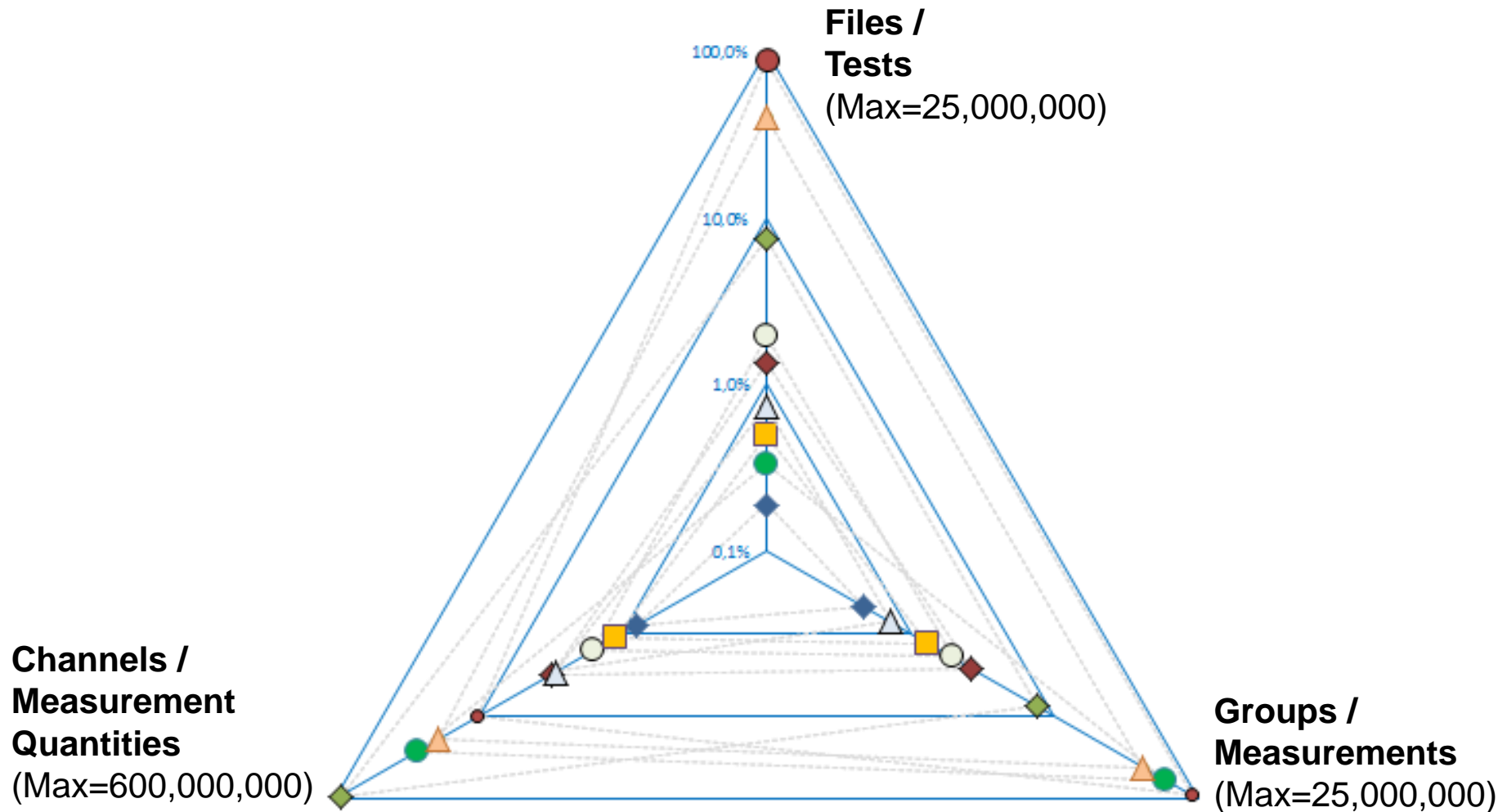
...across the organization



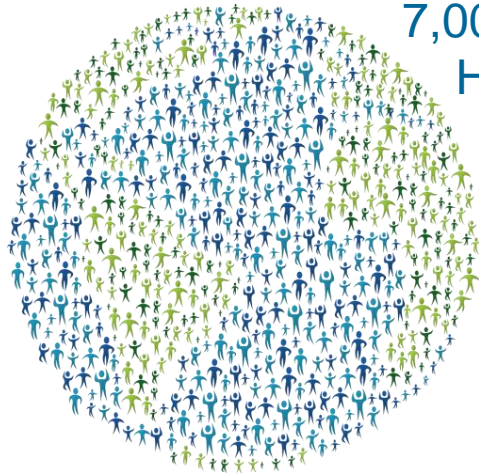
...across dispersed locations



Performance Use Cases / Customer Examples



Performance Use Cases/ Internal Benchmark



7,000,000,000 (7 Billion)
Human Population

100,000,000,000,000 (100 Trillion)
Cells in the Human Body



Example National Instruments Internal Benchmark



5,000,000 Files	(5 Million)
20,000,000 Groups	(20 Million)
90,000,000 Channels	(90 Million)
3,575,000,000 Properties	(3.6 Billion)
146,627,010,000,000 Measured Values	(147 Trillion)

Summary

- Mapping your data files to a unified and simple data model prior to running pre-processing analysis improves your code re-use and simplifies your analysis code.
- DataPlugins are a powerful way to parse raw data files, and they automatically map the parsed data to the TDM Data Model. NI has created over 1000 DataPlugins for customers. Published DataPlugin APIs exist in VBScript, LabVIEW, C++.
- NI DIAdem is an excellent tool to apply pre-processing to raw data files and submit them to any ASAM-ODS server.
- NI DataFinder ASAM-ODS Server is a robust, flexible and automatic tool to offer query and browsing access to your data from all ASAM-ODS client software.

Questions...



ni.com/dataplugins

ni.com/tdm

ni.com/diadem

ni.com/datafinder

ni.com/asamods