Delivering Digital Thread Leveraging API Factory and Common Data Model (CDM)

Nathan Nalven
Vice President, Customer Engagements
March 2023

BOEING is a trademark of Boeing Management Company Copyright © 2023 Boeing. All Rights Reserved
Copyright © 2023 Elysium Inc. All Rights Reserved
Copyright © 2023 Northrop Grumman Corporation. All Rights Reserved
Copyright © 2023 Parker-Hannifin Corporation. All Rights Reserved
Copyright © 2023 PDES. All Rights Reserved

Presenters Bio

Nate Nalven
Vice President - Customer Engagements

"The eQube® suite of products provide solutions that are only limited by our imagination"

Nate is a highly motivated and dedicated leader at eQ Technologic with over 35 years of Aircraft, Navel, Automotive & Weapon system hardware design, Manufacturing, and Management as well as Architecting and leading the Software & System development, implementation and computing infrastructure experience at Northrop Grumman.

His background uniquely positions him as in a consulting role on high level business, process and technical strategies, and down and in on the design through deployment leading the execution, deployment and support teams.

About eQ Technologic ('eQ')

Innovative Enterprise Software Company

- Focused on delivering Business Outcomes
- Makers of the revolutionary eQube®-DaaS platform for weaving Data Fabric
- In business since Yr. 2000
- Company founded in the US with subsidiaries in
  - India, UK, & Germany

Customers in 26 Countries

North America
Europe
United Kingdom
Asia-Pac

Worldwide Industries

- Aerospace & Defence
- Federal (DoD)
- Automotive & Machinery
- Ship Building
- High-tech
- Medical Devices
- Energy
- Transportation
- Food
- CPG & Retail

Some of eQ Customers…

© Copyright 2023 eQ Technologic, Inc. All rights reserved.

Collaborating to drive impact at scale…

Enterprise Software Companies	SAP, SIEMENS, ptc, Ansys, iBase-t
Cloud Infrastructure Companies	aws, Microsoft Azure
SI Partners	accenture, Atos
Regional & Market Focused	PITERION, SABLE SYSTEMS INTERNATIONAL

eQube® a Data as a Service (DaaS) platform for Data Fabric

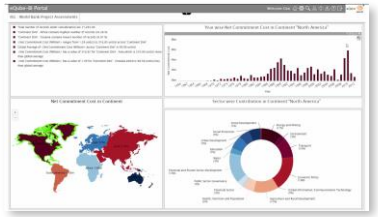
eQube® platform forms a Data Fabric of integrated data, applications, and devices that puts the power of analytics in the hands of end-users.

any data – at any speed, any application, any API, any format, any device …

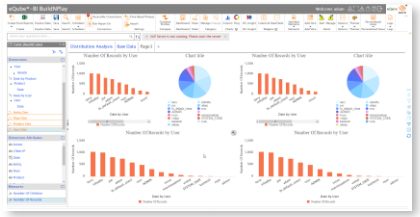
© Copyright 2023 eQ Technologic, Inc. All rights reserved.

Digital Backbone – Actionable Insight

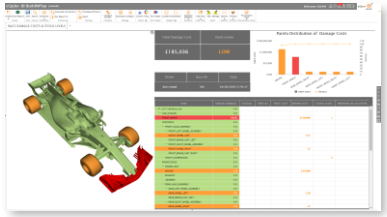
Throughput



Cycle Time

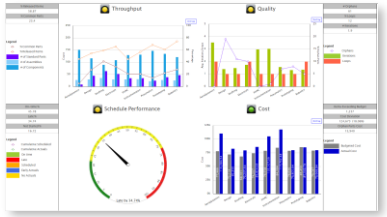


Cost



Quality

On Time Performance



Enterprise-wide BI

eQube BI

CAMEO ENTERPRISE ARCHITECTURE
Teamwork Cloud
IBM DOORS
IBM Rational
Jira Software
Bitbucket
Confluence
GitLab
TEAMCENTER
ORACLE PLM
xpedition
Mentor A Siemens Business
Ansys MINERVA
P6
SAP S/4 HANA
ORACLE E-BUSINESS SUITE
Microsoft Dynamics 365
SIEMENS Opcenter Core
IBM MAXIMO
salesforce
Legacy Systems / dB
MS Office
Data Warehouse
MindSphere
thingworx

eQube MI Digital Backbone

ENTERPRISE ARCHITECT
POLARION
jama software
JFrog
IBM Engineering Test Management
PTC Windchill
aras INNOVATOR
MICRO FOCUS Quality Center
Ansys GRANTA
Deltek Open Plan
SAP
IFS
Deltek Costpoint
SOLUMINA
Microsoft Dynamics CRM
NoSQL
Files
Sensors
Enterprise Data Lake
JEDMICS
lucene
Solr elasticsearch

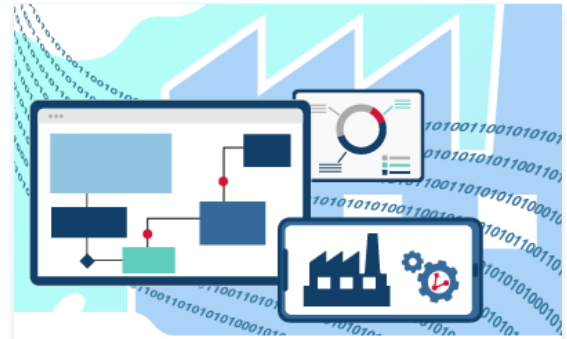
© Copyright 2023 eQ Technologic, Inc. All rights reserved.

Data Fabric solutions using eQube®-DaaS

Digital Thread / MBE

Closed Loop Manufacturing

Multi-PLM environment



Common Data Model and API factory

Build 'For-purpose' apps fast

Secure Collaboration

Business process Orchestration

Application consolidation / migration

Images hyperlinked for more information and video demonstrations

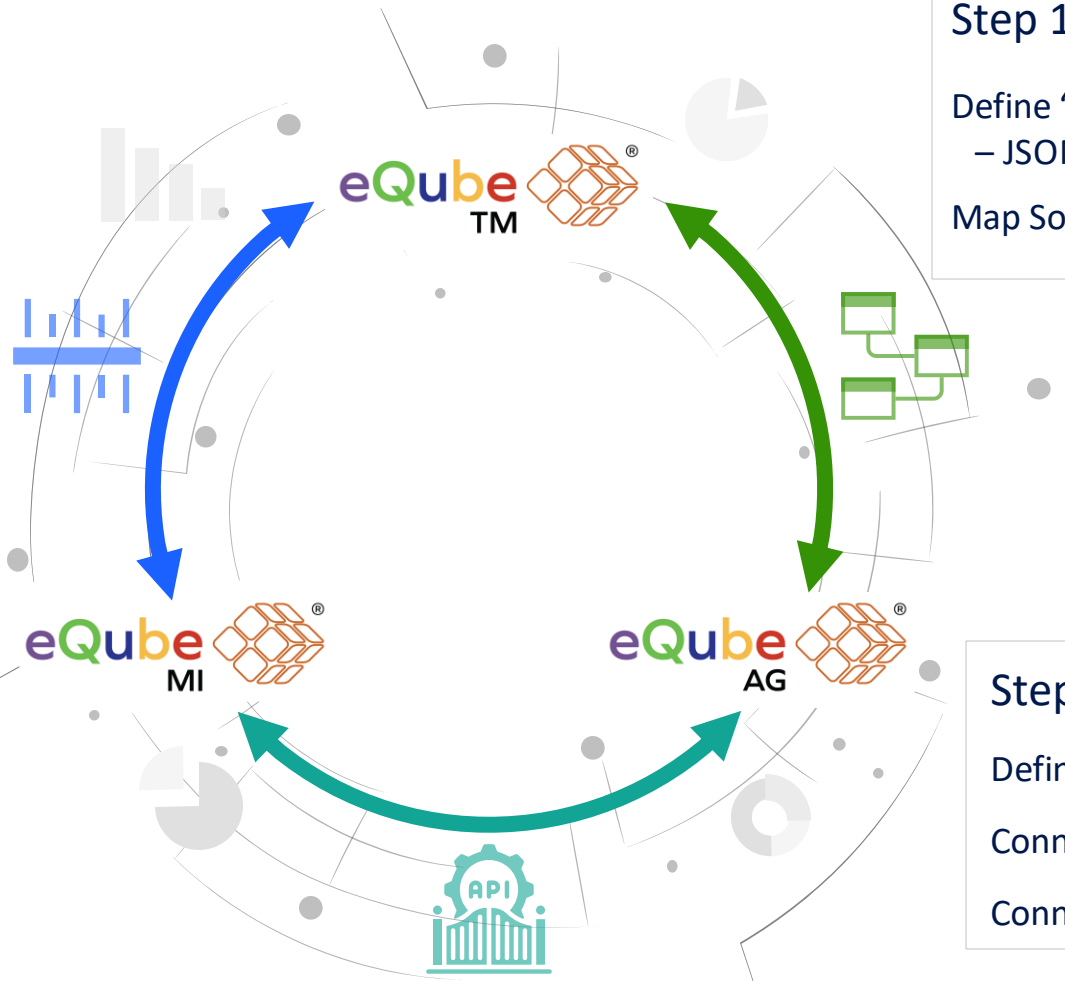
© Copyright 2023 eQ Technologic, Inc. All rights reserved.

Simple steps to build eQube® Solutions

Step 1

Define 'solution model'
– JSON for REST or OData service

Map Source system(s) to JSON or 'model'



Step 3

Update the MI stub process created by AG

Consume TM maps in the MI processing pipeline. Each pipeline represents a Service

Publish the REST or OData service in AG

Step 2

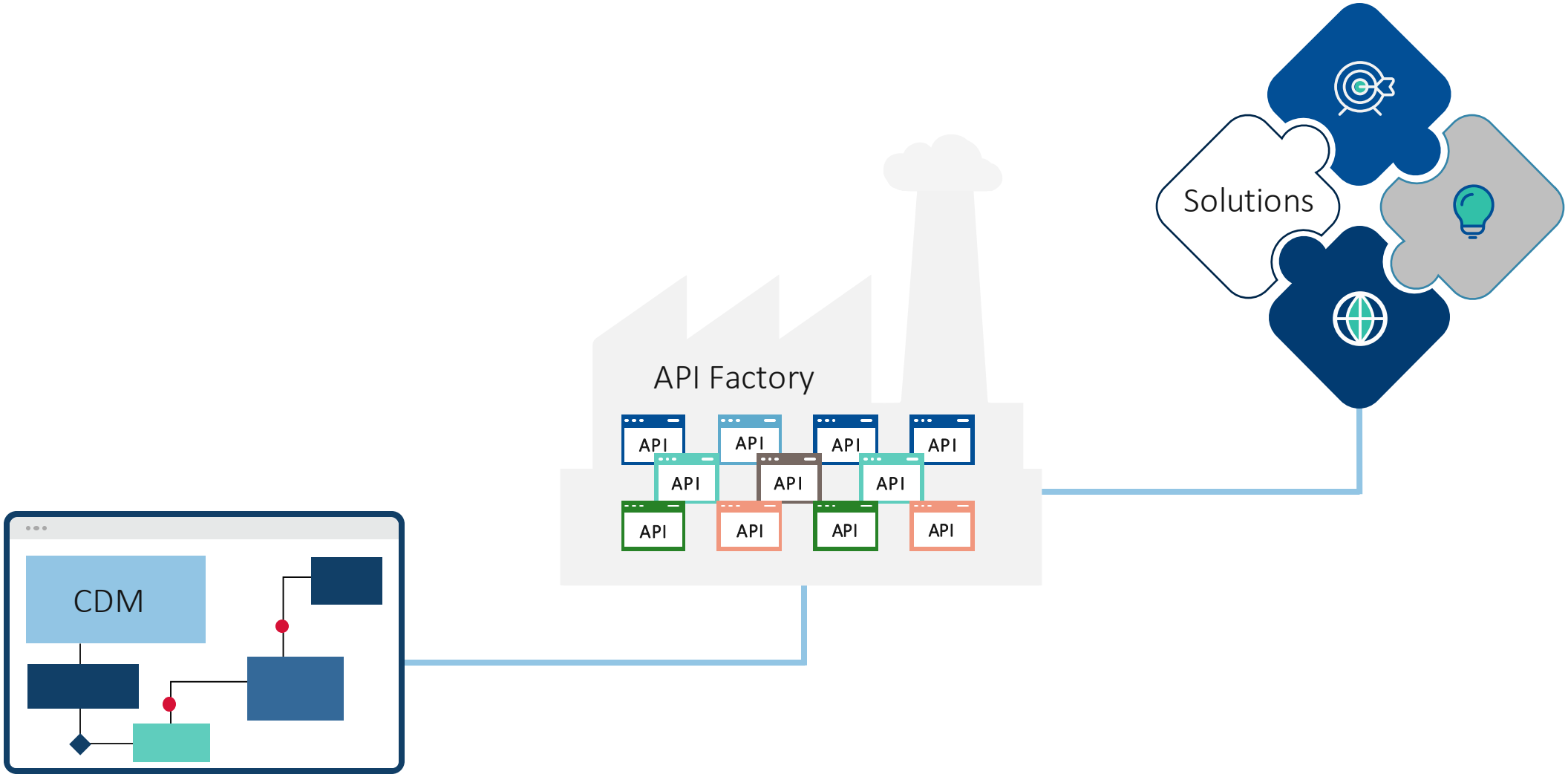
Define REST or OData Service

Connect it to the appropriate TM map

Connect to the relevant MI process

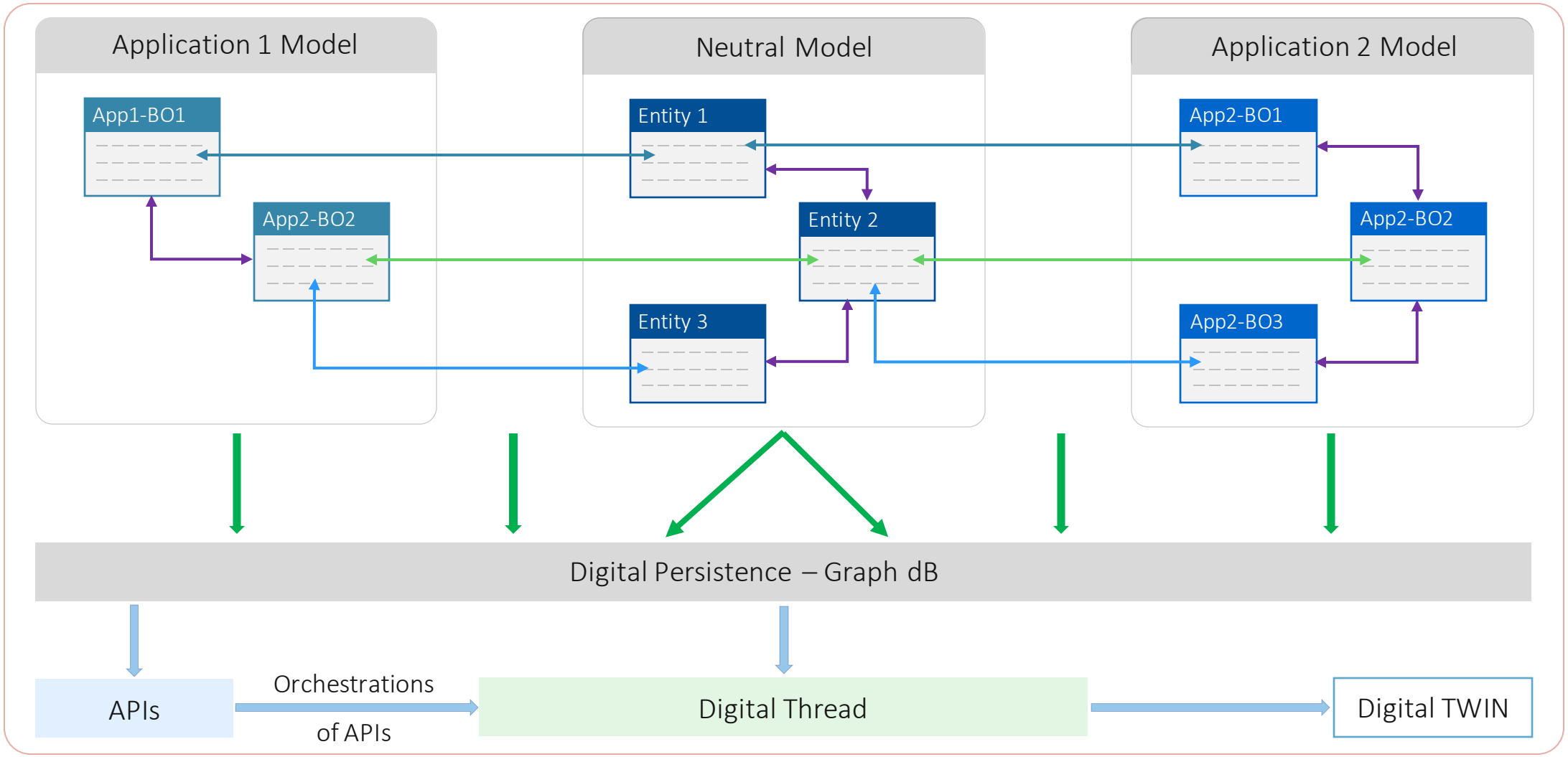
© Copyright 2023 eQ Technologic, Inc. All rights reserved.

Common Data Model and API factory



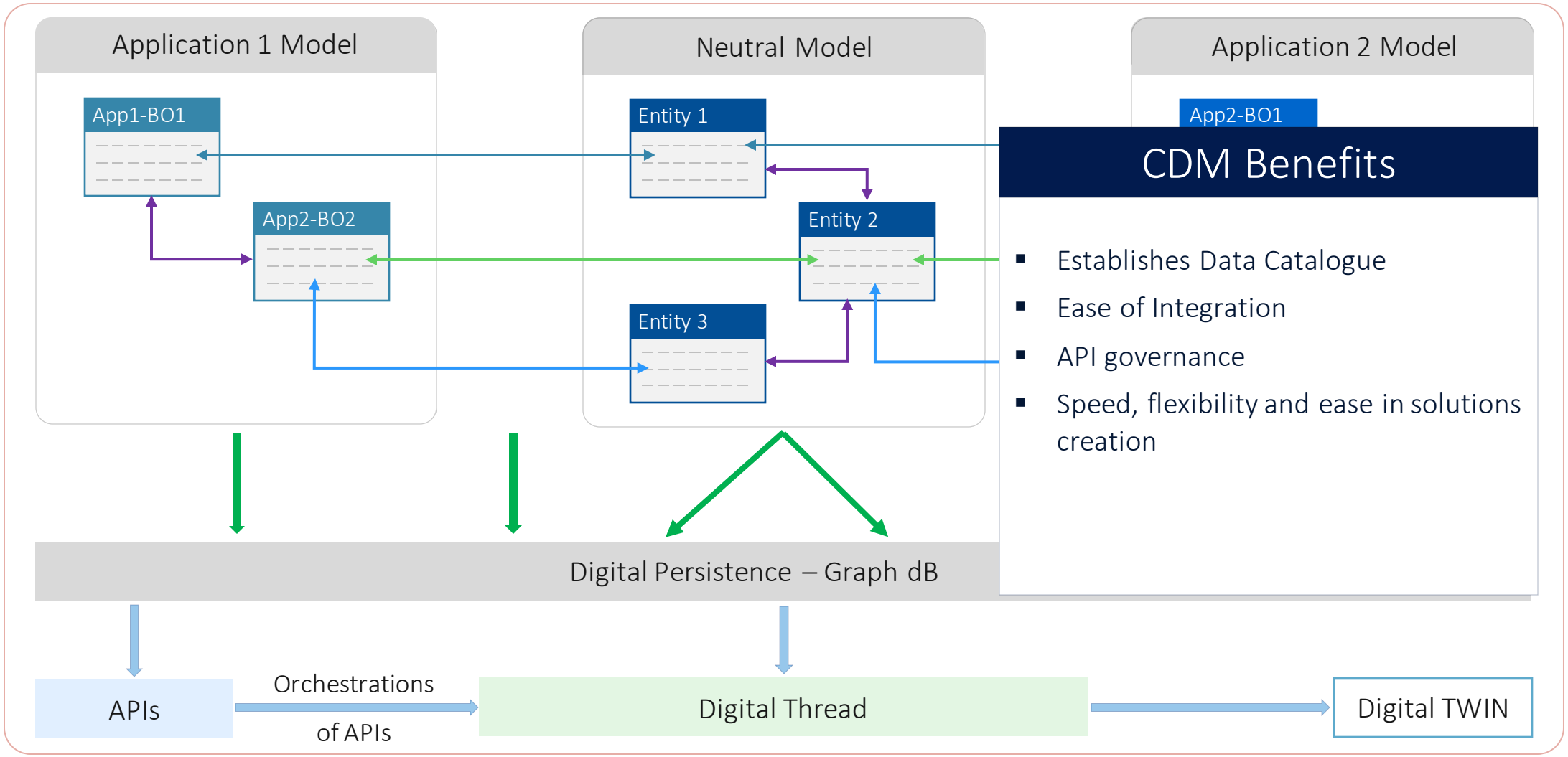
© Copyright 2023 eQ Technologic, Inc. All rights reserved.

Common Data Model



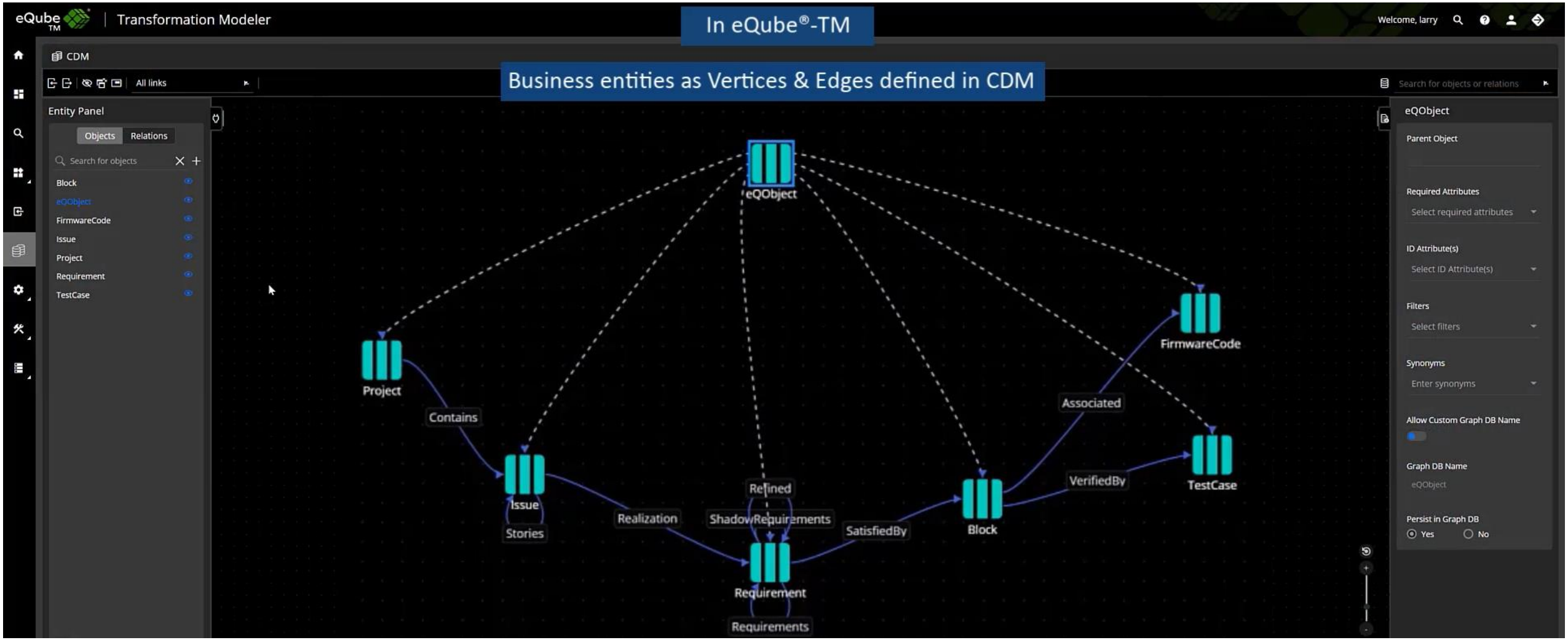
© Copyright 2023 eQ Technologic, Inc. All rights reserved.

Common Data Model



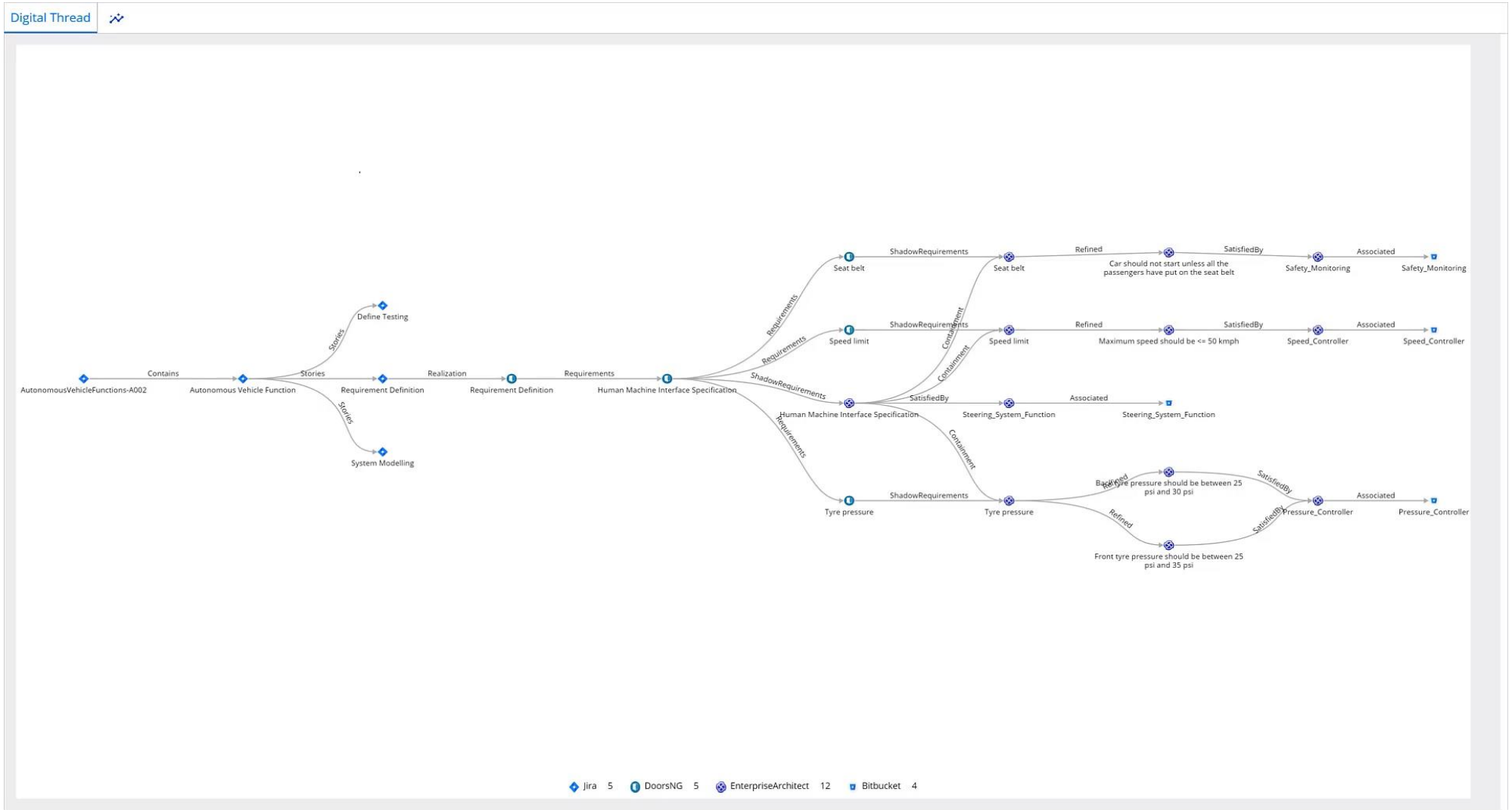
© Copyright 2023 eQ Technologic, Inc. All rights reserved.

CDM Approach – business entities – neural model



© Copyright 2023 eQ Technologic, Inc. All rights reserved.

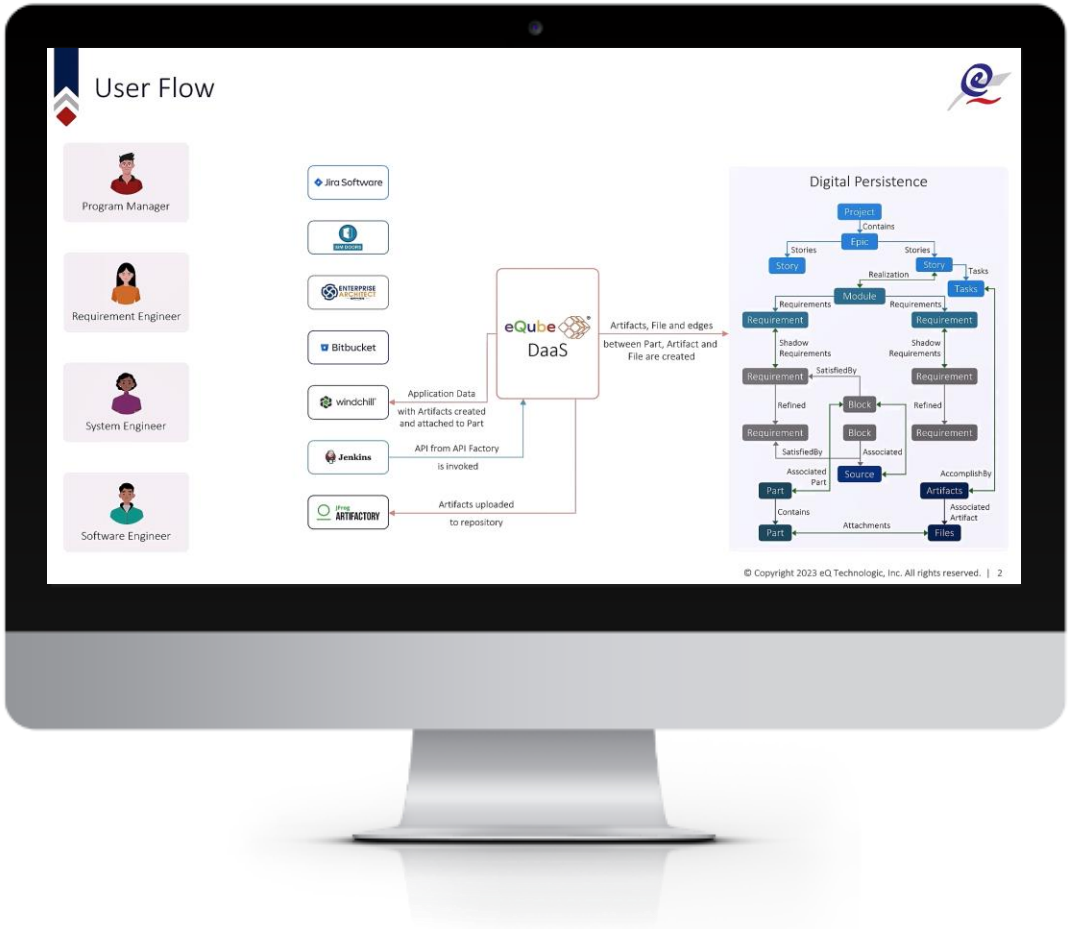
Digital Thread



© Copyright 2023 eQ Technologic, Inc. All rights reserved.

Digital Thread Leveraging CDM based API factory

- Actors
  - JIRA (Program Management)
  - DOORS NG (Requirements Management)
  - Enterprise Architect (System Modelling)
  - Bitbucket (Software Configuration Management)
  - Jfrog Artifactory (Software Repository)
  - Windchill (PLM)
  - Jenkins (CI/CD Pipeline)
- Orchestration
- Common Data Model (CDM)
- Data Catalogue
- API Factory
- Automated Edge Database
- Automated Digital Fabric
- Navigable Links
- Eliminate User Clerical Activities



© Copyright 2023 eQ Technologic, Inc. All rights reserved.

eQube®-DaaS Differentiators

- Data Fabric: establishes a robust, scalable, secure, & flexible data fabric
- Low/No-code Integration platform: unique capability for rapid solutions implementation
- Heterogenous systems: agnostic to any application or data source – neutral platform
  - 80+ OOTB connectors released in the market (ALM, PLM, ERP, MES, MRO, CRM, databases – relational & No-SQL, streaming, files, data warehouse /lake,...)
  - Platform is upgrade tolerant
- Integrated data virtualization layer : effectively deals with any data, any format, any API, at any speed…
  - Provides OOTB capabilities of data mash-ups, data federation, replication, smart caching, migration
- Security: connected application level, authentication methods (NTLM, SAML, Kerberos, Certificate based..), secure collaboration
- Deployment flexibility: VMs, Containers – on-prem, multi-cloud, hybrid