MARKLOGIC WORLD 19

Boeing's Data Security Journey

Sema Ustuntas

Principal Architect, Analytics and Information Management Systems

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What is 2nd Century Enterprise Systems?

Digital Transformation:
A change to update, modify, and improve whole systems of an organization

The Boeing Company is on a digital transformation journey. 2CES is one of the mechanisms helping Boeing transform Boeing through process improvement, data management and technology enhancement.

2CES will enable Boeing to:

- Reduce time to value by streamlining and simplifying work
- Deliver global-ready and adaptive processes and systems
- Evolve to meet future and expanding business needs
- Unleash data and information to transform decision-making

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Enterprise Transformation Enabler: 2nd Century Enterprise (2CES)

Digital Transformation of Boeing

Product Design

ERP

- Drive benefits across the value chain, maximum value is achieved from end-to-end integration
- End-to-end process integration across supply chain and finance
- Reduce redundant work and data reconciliation

2CHR

- Reshape how HR supports Boeing through simple, common processes, and effective technology
- HR processes delivered in a new way
- Consumer-based experience

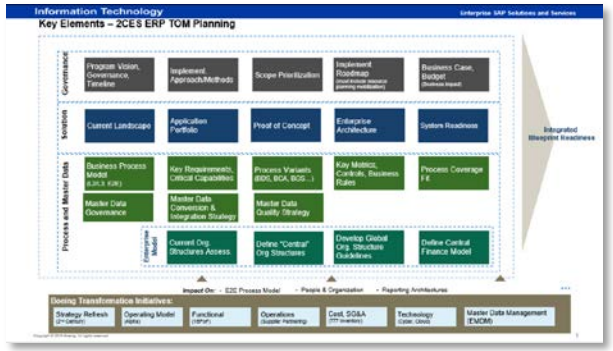
PLM

- Reduce overall time to market and provide consistency in the engineering process
- Reduce time to reconcile and recreate data
- Digital thread capabilities across the entire value stream

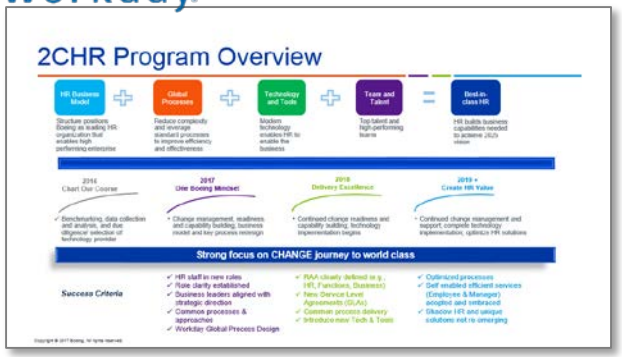
MOM

- Bring consistency and reduced cost in the manufacturing process
- Enable labor cost reductions through automation
- Planning and scheduling improvements
- Enhance analytics to support performance management

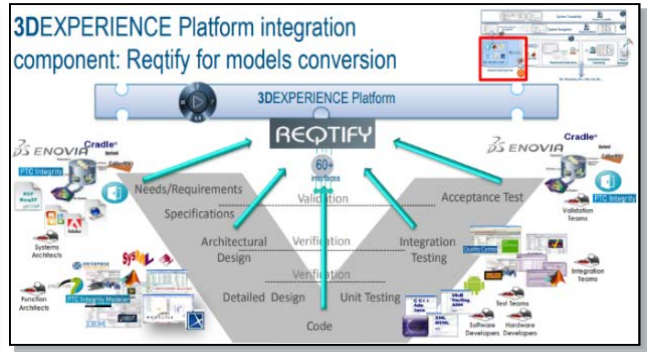
SAP S/4 HANA



workday.



DASSAULT SYSTEMES



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Enterprise Transformation Enabler: 2nd Century Enterprise (2CES)

Digital Transformation of Boeing

Product Design

Business Architecture

- End-to-end process architecture definition at a common enterprise level
- Industry standards-based process approaches

Strategic (IT) Architecture

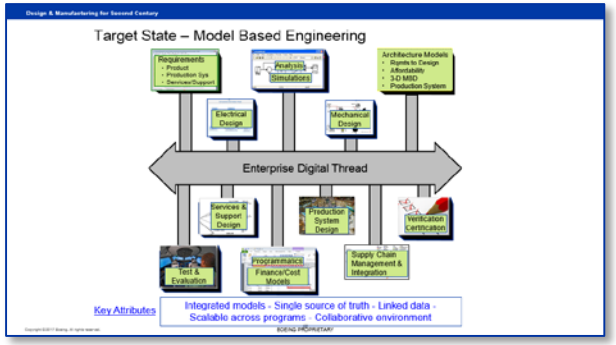
- Robust, scalable target enterprise architecture founded on integrated data and end-to-end processes

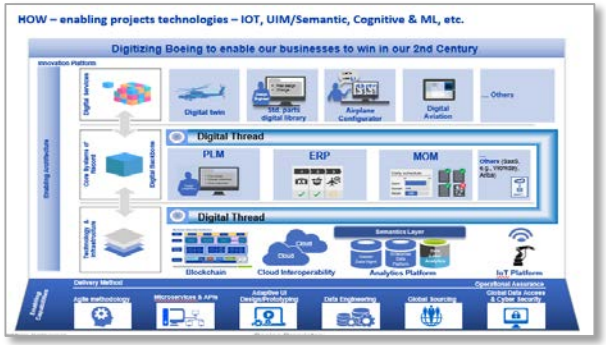
Foundational Services

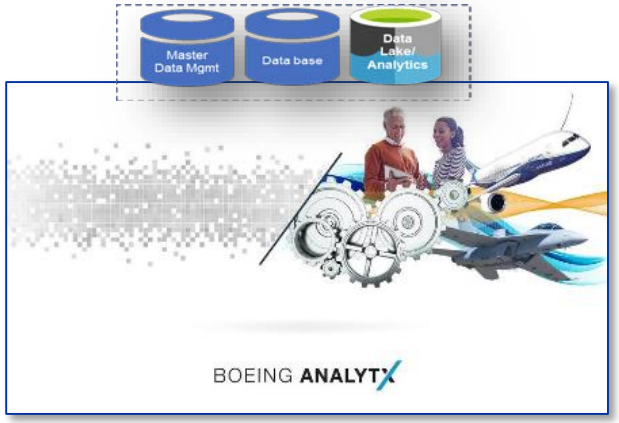
- Enterprise data and analytics platform to enable leverage of the digital thread across the value stream

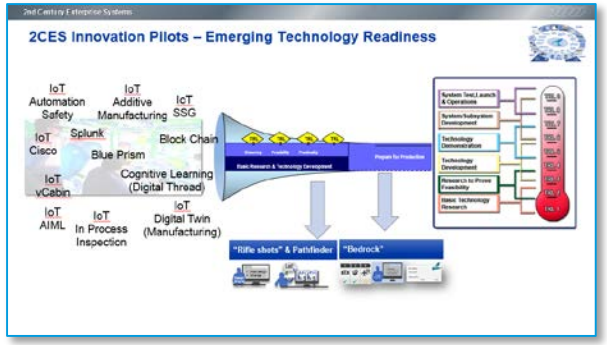
Innovation Pilots

- Proof of concepts for emerging technologies to determine business value impacts









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Access Control and Data Security

Business Drivers

- Governance and regulatory compliance needs
- Cloud/Mobile driven engagements
- Driven to move faster, with reduced cost, and much more efficiently
- Global presence must be secured to protect competitive advantage

Boeing Operators

Boeing Suppliers

Boeing Employees

Technology Centers

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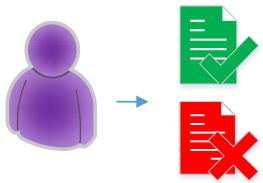
Access Control: IBAC, RBAC, and ABAC

Can you afford not to adopt?

Identity-Based Access Control (IBAC)

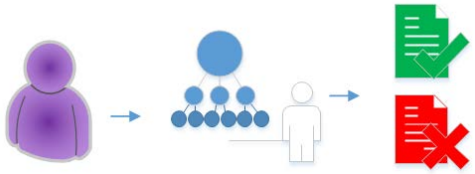
- Used to prevent users from interfering with each others' work
- Depends on verifying user's identity
- Who we are determines what we are permitted to do in the system
- Simple to implement, but not scalable
- Harder to manage/maintain
- Good for centralized monolithic systems



User = Access

Role-Based Access Control (RBAC)

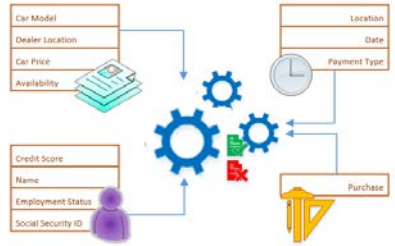
- Users inherit privileges tied to roles
- Permissions are tied to roles
- Roles are collection of permissions
- Users can have one or more roles
- Good for systems that can predefine all roles and associate permissions
- Identity attached to multiple roles are complex to manage



Role = Access

Attribute-Based Access Control (ABAC)

- Referred to as policy-based access control or PBAC as well
- Access decisions are made based on attributes (key/value pairs)
- Policy language is eXtensible Access Control Markup Language (XACML)
- Policies enable relationships by using attributes



Attributes = Access

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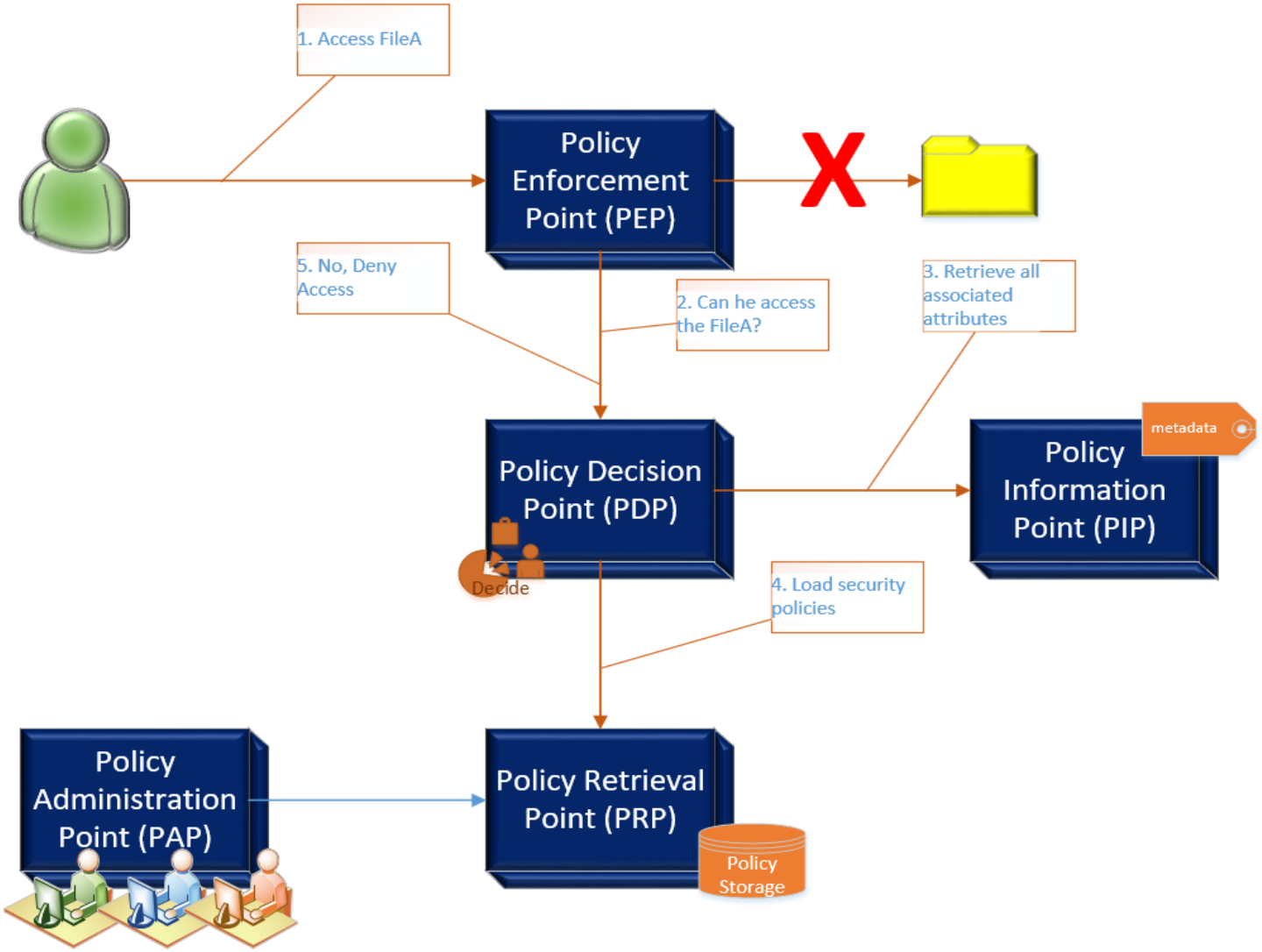
ABAC Architecture and Authorization Flow

How to authorize with policies and attributes

1. PEP intercepts the request, converts it to an access request, and sends to PDP.
2. PDP evaluates access requests against available security policies and returns a decision to PEP.
   - If PEP does not provide all of the required information, PDP utilizes PIP and PRP to complete the missing data.



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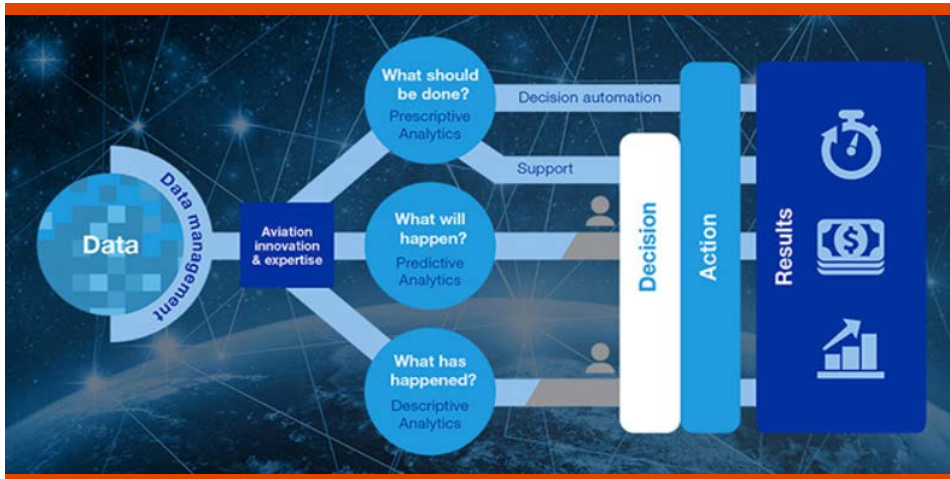
2CES Global Data Access

What it takes to automate compliant global access to integrated data platforms and services

- Information Governance and Master Data Management
- Enhanced User Identity Management
- Enterprise Policy Administration
- System Enablement



"Data doesn't work in silos; it needs to breathe and interact with other information in order to tell the whole story, not just parts of it" – Ted Colbert, Boeing chief information officer and senior vice president of Information Technology & Data Analytics

- Externalizing access control from the business logic
- Centralizing security policies
- Standardizing policies to use a common language
- Integrating horizontally across platforms

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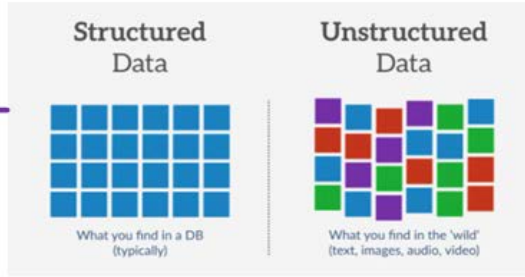
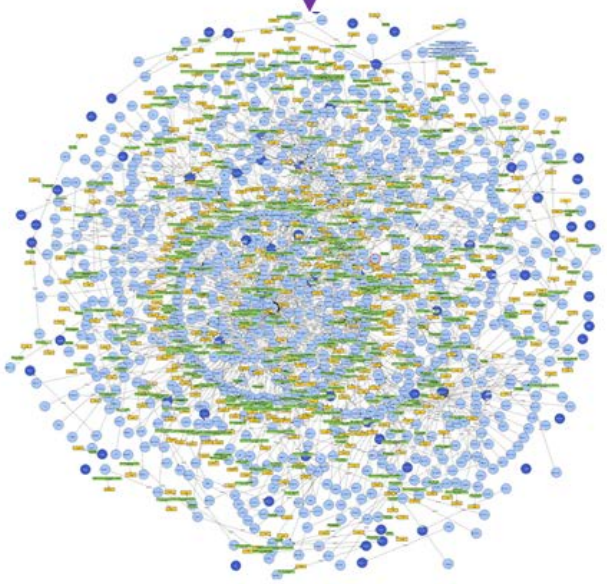
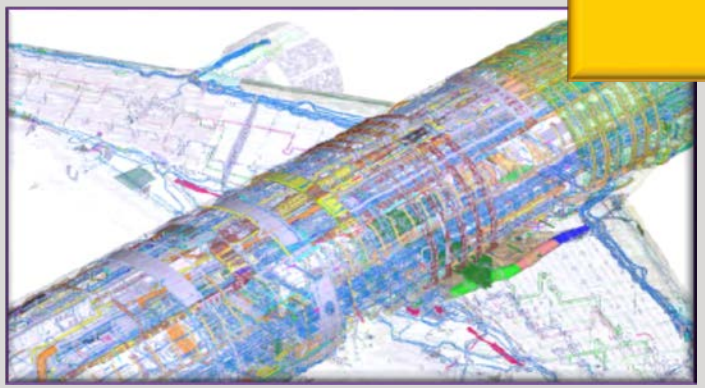
2CES Data Security & Access Control

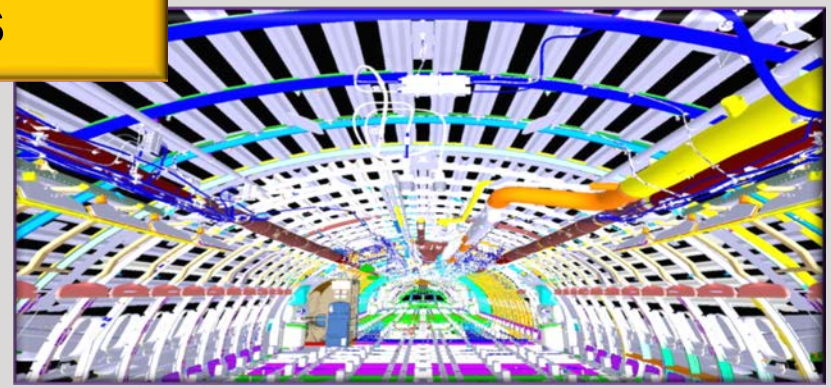
- Policy Identification
- Knowledge Graph
- Policy Trends
- Master Data Management
- Policy to Attribute Mapping





Visualization and Analytics





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