OAGi Plenary
Wednesday, 7 November

Oracle Conference Center, 350 Oracle Parkway, Redwood City, CA 94065 USA

8:30	Light Breakfast
9:00	OAGi Welcome Jim Wilson, OAGi President
9:10	Oracle Welcome Garret Minakawa, Oracle, OAGi Board Chair
9:20	OAGi Update Jim Wilson, OAGi
9:50	Japan Petrochemical Association Update Jim Wilson, OAGi
10:05	Marketing Report Michael Figura, OAGi
10:30	*Break*
10:45	Chairman's Remarks Garret Minakawa, Oracle OAGi Board Chair
12:00	*Lunch*
13:00	Semantic Refinement Tool Demo; Discussions Serm Kulvatunyou, NIST; Michael Figura, OAGi
14:00	OAGIS for Acquisition Integration; Discussion Ian Hedges, Vice President, Platform Product Management, E2Open
14:45	*Break*
15:00	Blockchain in Pharma Eric Garvin, Pharma Solutions, Chronicled
16:00	Blockchain Implications for OAGi Open Discussion
17:30	*Adjourn*
18:00	Informal Drinks and Dinner

OAGi Working Groups Meeting
Thursday, 8 November

Oracle Headquarters, 500 Oracle Parkway, Redwood City, CA 94065 USA

8:30	SRT Open Source Governance AIA/EBO Next Steps Mobile/Cloud/JSON Smart Manufacturing OAGIS Profile for Small and Medium-Sized Enterprises OAGIS Patterns & Practices Project Proposal Other SRT Topics
17:00	Adjourn

OAGi Plenary hosted by Oracle

Redwood City, California, USA • 2018-11-07

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Introductions

This Morning

9:00 OAGi Welcome
Jim Wilson, OAGi President

9:10 Oracle Welcome
Garret Minakawa, Oracle, OAGi Board Chair

9:20 OAGi Update
Jim Wilson, OAGi

9:50 Japan Petrochemical Association Update
Jim Wilson, OAGi

10:05 Marketing Report
Michael Figura, OAGi

10:30 Break

10:45 Chairman's Remarks
Garret Minakawa, Oracle OAGi Board Chair

12:00 Lunch

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This Afternoon

13:00 Semantic Refinement Tool Demo; Discussions
Serm Kulvatunyou, NIST; Michael Figura, OAGi

14:00 OAGIS for Acquisition Integration; Discussion
Ian Hedges, Vice President, Platform Product Management, E2Open

14:45 Break

15:00 Blockchain in Pharma
Eric Garvin, Pharma Solutions, Chronicled

16:00 Blockchain Implications for OAGi
Open Discussion

17:30 Adjourn

18:00 Informal Drinks and Dinner

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OAGi's Mission

Reduce the cost of integration by developing inter-operable, cross-functional, cross-industry, data-model-driven, and extensible standards to meet the challenge of a rapidly-changing global digital economy.

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OAGi Staff and Objectives

- Staff
  - Jim Wilson, President & CEO
  - Michelle Rascoe, Executive Assistant
  - Michael Figura, VP Member Experience
- Finances
  - Strong balance sheet
  - Good outlook for 2019 with consulting agreements with Lockheed Martin and Oshkosh
- Marketing objectives
  - Membership growth
  - Increase OAGi awareness and stature in targeted demographics
  - Promote the image of OAGIS as an international standard
- Using CRM

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OAGi Present Activities

- Working Groups
  - Smart Manufacturing WG
  - Small & Medium-Sized Enterprise WG
  - Semantic Refinement WG
  - AIA/EBO WG
  - Mobile/JSON WG
- OAGIS development

- Industry Initiatives / Collaborations
  - NIST
  - AgGateway (agriculture)
  - JPCA (chemical-Japan)
  - Industrial Ontology Foundry
  - MIMOSA
  - Aerospace/Defense

Semantic Working Group

Purpose

- To develop methods/specifications and tools to support OAGIS development and usage from the syntax independent representation to syntax specific/implementation expressions. The may extend from schema generations to API/service description generations.

Key Accomplishments

- Import and represent OAGIS with respect to the syntax-independent CCS (ISO 15000 Part 5) meta model in the RDBMS.
- Allow OAGIS contextualization for specific implementation in the CCS syntax independent form.
- Allow serialization of contextualized OAGIS to XML and JSON schema.

Key Upcoming Deliverables

- Transition the software to the Angular framework to improve performance.
- Allow releases of the OAGIS canonical model to be developed and maintained in the syntax independent form with higher traceability.
- Enhance JSON Schema and API generation.
- Open source the software.

Smart Manufacturing Working Group

Purpose

- To explore Smart Manufacturing developments related to OAGIS and start activities to apply and/or advance OAGIS in support of Smart Manufacturing

Key Accomplishments:

- Designed Business Process Cataloging and Classification System (BPCCS) in support of OAGIS' context management for Smart Manufacturing
- Created the BPCCS meta-model based on the ebRIM (ISO/TS 15000-3) standard
- Prototyped and validated BPCCS with feedback from OAGi members

Key Upcoming Deliverables

- White paper and conceptual approach for an IIoT canonical model (in collaboration with MIMOSA)
- IIoT use cases, which capture the intended use of the new IIoT canonical model

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Small and Medium-Sized Enterprise Working Group

Purpose

- To address complexity issues in using OAGIS by small and medium-sized enterprises (SMEs) by providing an ‘OAGIS Profile for SMEs’

Key Accomplishments

- Identified target procurement business processes for the initial OAGIS Profile for SMEs
- Completed profiles for Invoice and PurchaseOrder nouns in the procurement process (BIEs) and generated XML Schema and JSON Schema expressions using SRT
- Began our draft of a professional paper describing our effort

Key Upcoming Deliverables

- Initial validation: Land O' Lakes will use SME Invoice for their NutraBlend<-> Purina integrations; expose SME profiles on API gateway for other Purina vendors and NutraBlend suppliers to hit
- Work with Open Source Middleware vendors, E2open, Ariba,and SME ERP vendors
- Profile AcknowledgePurchaseOrder BOD for NutraBlend to Purina Animal Nutrition integration.
- Begin to profile existing RemittanceAdvice noun used at Land O’Lakes, adding allowance and dispute capabilities from 10.4 release

AIA/EBO Working Group

Purpose

- Selectively migrate Oracle Enterprise Business Objects into OAGIS 10.x

Key Accomplishments

- Migrated ShipmentRequest into OAGIS 10.5.
- Moved key concepts of TransportationStop into new ShipmentStatus message.
- Moved key concepts of ShipmentPlan into existing CarrierRoute message.
- Leveraged AIA Flattener and MS Access to compare components and elements.
- Identified areas of opportunity for matching element names using synonyms.

Key Upcoming Deliverables

- Review Formulation based EBOs (DRM upgrade)
- Review Bill of Material based EBOs.
- Review Item master based EBOs.

JSON/Mobile Working Group

Purpose

- Provide best practices and production rules specifications to enable OAGIS as REST JSON
- Define how OAGIS will be expressed in JSON
- Including considerations of REST

Key Accomplishments

- Reviewed ADP REST contribution.
- Resolved ‘developer-friendly’ JSON export from SRT based on user feedback, including description for documentation.
- Work on JSON Schema production rule/ serialization specification.
- Working through a contribution from ADP for the RESTful Web API Design
- Have addressed Resource, Meta Resources
- Currently reviewing URI resources
- Comparing the document to existing solutions.

Key Upcoming Deliverables

- Determine how to incorporate Example keyword into SRT production rules for documentation needs
- Review $id vs id changes in JSON Schema, and other key features between DRAFT 4 to DRAFT 7+
- Dive deeper into OpenAPI Specification (v2.0 to v3.0), compare to JSON Schema; review general direction
- Publication of the RESTful Web API Design
- Targeting end of the year.
- Publication *OAGi JSON NDR Specification* (Serm proposes name-change to *OAGi BIE to JSON Schema Serialization Specification*)

OAGIS 10.5 Publication

Status

- All new content work is complete and submitted. We are in the process of bring the work groups new content into OAGIS.

Major deliverables

- ShipmentRequest
- ShipmentStatus
- CarrierRoute update
- New REST Component

Major milestones and their estimated dates leading to release (all 2018)

- 7 November: Complete the adding the new content into OAGIS
- 8-16 November: Member Review Period
- 19-30 November: Publication Phase
- 3 December: Publication on Website

Score

An ISO 15000-Compliant Business Information Modeler

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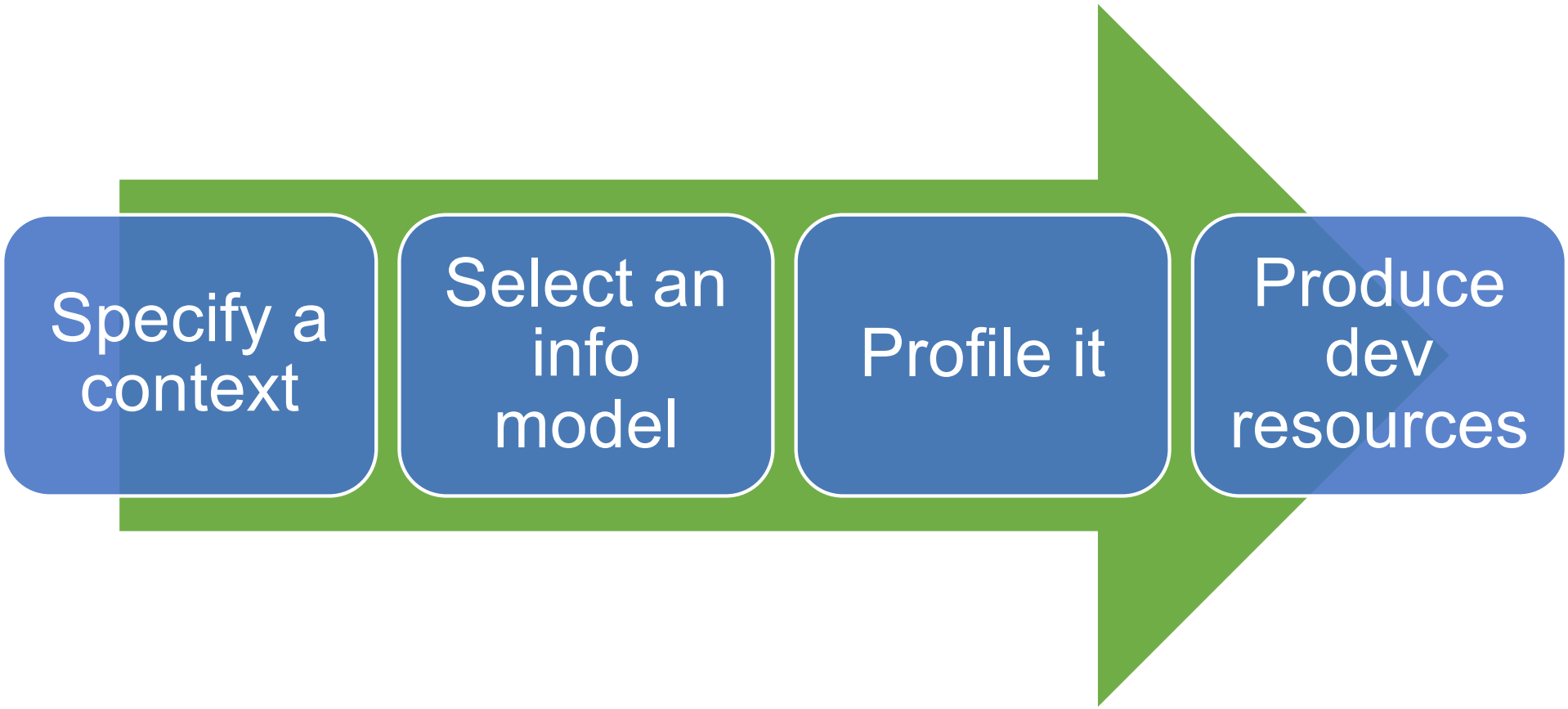
What does Score do?



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SRT: What is it – technical details

- Compliant with ISO 15000 Part 5: Core Component Specification
- Browser-based application
- Angular-based UI(released very soon)
- Java services and business logic
- Hibernate for ORM
- Tested with Oracle and MySQL database
- Single-tenant (for now)

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Score: Where we've been

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Score: Where we've been

- A collaborative tool that supports ISO 15000-5 has been necessary for years
- The tool closest to meeting the need has been a desktop application, with collaborative workflows that are tedious
- NIST and OAGi partnered to develop requirements, oversee development, develop prototype, and test Score
- All of OAGIS is loaded into a database in conformance with ISO 15000-5
- On-premises Docker-based instances are available to OAGi member
- Has been tested with Oracle and MySQL databases

Score: Where we are now

Score: Where we are now – 1/2

- We have reached release stability (e.g., database upgrade scripts)
- Value is proven! Boeing, Lockheed Martin, ADP, and Land O'Lakes all have instances. Archer Daniels Midland and Oshkosh are next.
- Application architecture has been thoroughly reviewed
- The OAGi Policy Board has approved a transition to open source

Score: Where we are now – 2/2

- Need some functionality (details in next topic)
- JSON-schema production is being tested
- Testing Angular-based UI

Score: Where we're going

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Score: Where we're going - 1/2

- Add support for Core Component (OAGIS) management (not just BIE management)
- Complete our support for JSON schema
- Integrate with business process management tool (sister NIST/OAGi project)
- Support profile import/export
- Support uplifting profiles to newer OAGIS versions
- Release Angular-based UI

Score: Where we're going - 2/2

- AWS hosting for up to two months
  - Explore performance/usability
  - Cost dynamics
  - Serve as a marketing tool
  - *Note: We selected AWS because the person doing the work knows the platform. What we learn should generally apply to Oracle Cloud, Azure, IBM Cloud, etc.*
- Develop roadmap
- Transition to open-source software (OSS)

Score: Transition to open-source software (OSS)

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OSS: Code Prep

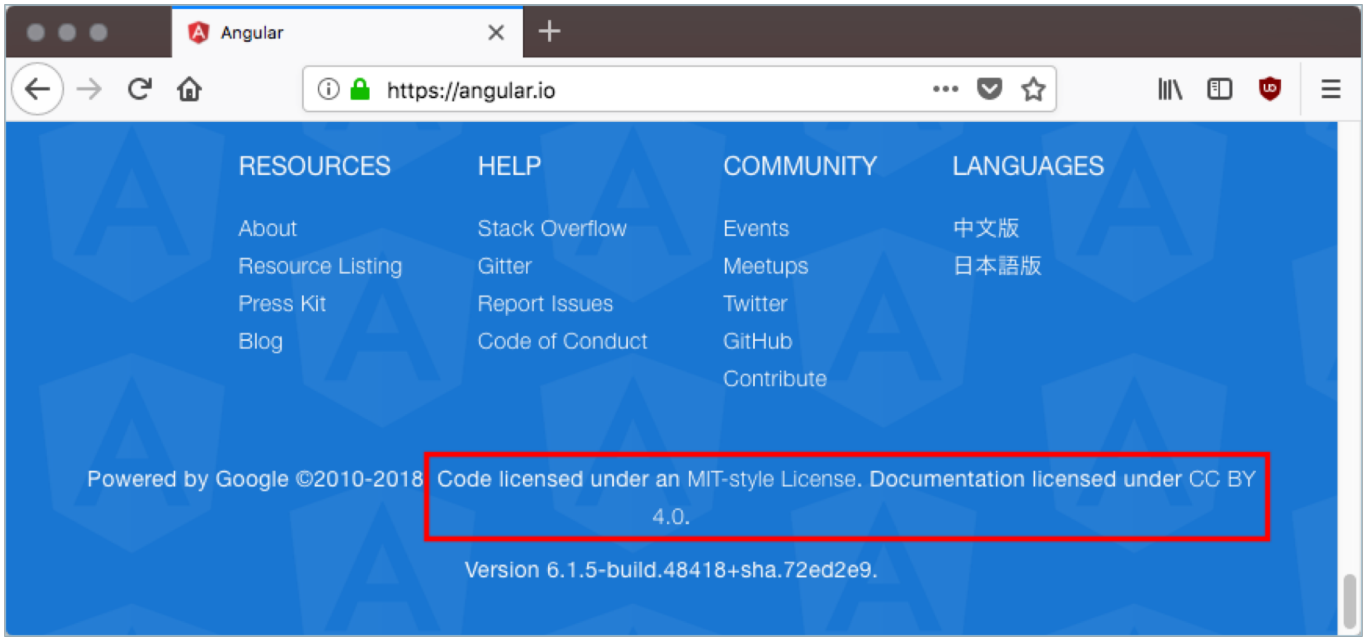
- Prepare the current code base for public availability
  - GitHub public access
  - Database loaded with demo content (e.g., ProcessPurchaseOrder)

OSS: Governance

- Develop open-source governance plan
  - OAGi oversees the open-source community with exclusive merge/commit rights
  - OAGi prioritizes all organized development efforts (however, anyone can submit a pull request)

OSS: Licensing

- MIT license for code
- CC BY 4 for documentation
- Discovered after settling on this recommendation that this is what Google uses for Angular



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OSS: OAGi Instance

- Provision a cloud-hosted authorized-access instance for OAGi
  - Marketing/demo resource
  - Primary OAGIS repository
  - Profile exchange, with profiles freely available to any OAGi member
    - Initially through import/export process that staff manages
    - Later through authorized and automated instance-to-instance profile exchange

OSS: Encourage Use

- Encourage members to
  - Implement on-prem version or use OAGi-member service-provider-hosted cloud solution
  - Share profiles
  - Use shared profiles

OSS: Architecture Review

- Plan a 1.5-day architecture review
  - If we get through the review early, start on product roadmap
- Ask NIST to host it
- Minimum attendees
  - Hakju
  - Serm
  - Jim
  - Mike Rowell

OSS: Product Roadmap

- Conduct three (or so) two-hour conference calls to
  - Review outcome of architecture review
  - Develop product roadmap

OSS: Development Support

- Code
  - People
  - Money
- Dev ops (e.g., continuous integration process)
  - People
  - Money
- Documentation and Technical Promotional Material
  - People
  - Money

OSS: Complimentary Confluence/JIRA Use

- Why?
  - Need a better collaboration tool than Google docs
  - Proven effective for a AgGateway and other organizations
- Prerequisites
  - Have code available under acceptable license: Addressed earlier
  - Have dedicated microsite: Develop one
- Apply for license
  - Jim is 2/2 doing this

OSS: Promotional Positioning

- We should consider how to feature the SRT (or whatever we end up calling it) in all of our promotional and communications material

JCPA CEDI Update

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Thank you!

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Japan CEDI Update

JPCA: Japan PetroChemical Indusutry Assosiation
CEDI: Chemical EDI Initiative

OAGi November Plenary Meeting
Oracle in Redwood City, California, USA • 2018-11-07

JPCA 石油化学工業協会 Japan Petrochemical Industry Association

CEDi Chemical EDI Initiative

CEDI History / Present

- CEDI was founded in 2002
  - To promote Chem eStandards in Japan
  - JPCA member company, IT vendor, Trading company
  - Working groups under “CEDI Subcommittee”
- CEDI Subcommittee was dissolved in 2015
  - Moved to maintenance stage of the standards (CeS, JPCA-BP)
  - Working groups under JPCA for each problems

    CEDI-WG: Maintain CEDI standards

    2024-WG: Respond for “2024 problem” (describe later)

    GSCM-WG: Deal with global supply chain management

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CEDi Chemical EDI Initiative

Consumption Tax Increase with Mitigation

- Enforce from October 2019
  - Tax rate increase from 8% to 10%
  - Mitigation rate (8%) for foods - include chemical additive
- Need EDI system corresponding to the mitigation
  - 8% and 10% intermixed in system
- CEDI-WG mission
  - Investigating the tax details and members circumstance
  - Identify required items in the protocols
  - CEDI may needs to request CeS update

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CEDi Chemical EDI Initiative

Interbank Transfer Renewal

- Bankers Association is renewing interbank transfer system
  - Transfer more information on commerce
  - To automatically clear accounts receivable
  - Potentially develop a new service (e.g. commercial database)
- CEDI-WG mission
  - Survey accounting practice in chemical business
  - Identify useful date in chemical

2024 Problem

- No more ISDN service in 2024
  - NTT* officially announced in 2017 –
    * Nippon Telegraph and Telephone Corporation (http://www.ntt.co.jp/gnavi_e/index.html)
  - JPCA-BP EDI needs alternative internet protocol
- CEDI transition policy
  - Maintain communication format
  - Use Japanese common internet protocol
  - High security
- 2024-WG mission
  - Preparing transition guidelines
  - Communication test
  - Complete by YE 2022

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CEDI Chemical EDI Initiative

Global Supply Chain Management

- NACCS* updated service in October 2017

  * Nippon Automated Cargo and Port Consolidated System
  (http://www.naccs.jp/e/aboutnaccs/aboutnaccs.html)

  – System for online processing of procedures taken with customs and other relevant administrative authorities or related private-sector services for arriving / departing ships and aircraft or import / export cargo. (NACCS website)

  – Potential use NACCS import / export data for CEDI

- GSCM-WG mission

  – Understanding import / export practices

  – Exploring the trends in systems and protocol used in import / export

Thank You

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CEDi Chemical EDI Initiative

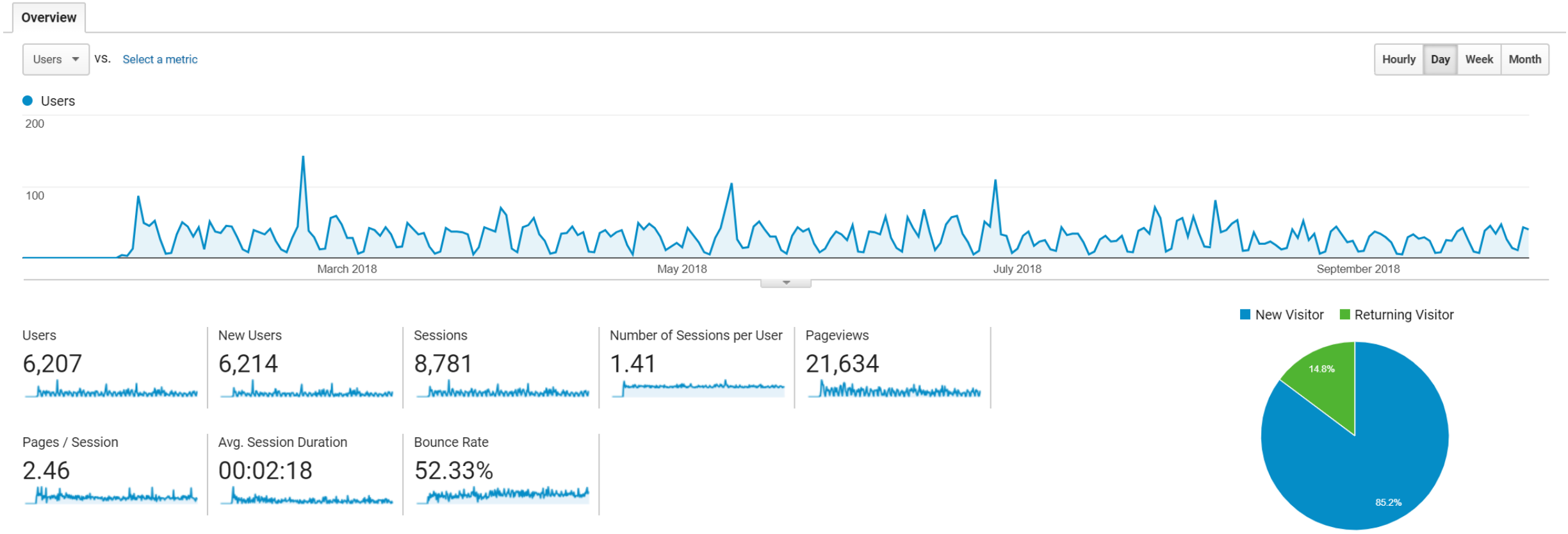
OAGi Plenary

MARKETING & CUSTOMER RELATIONSHIP MANAGEMENT

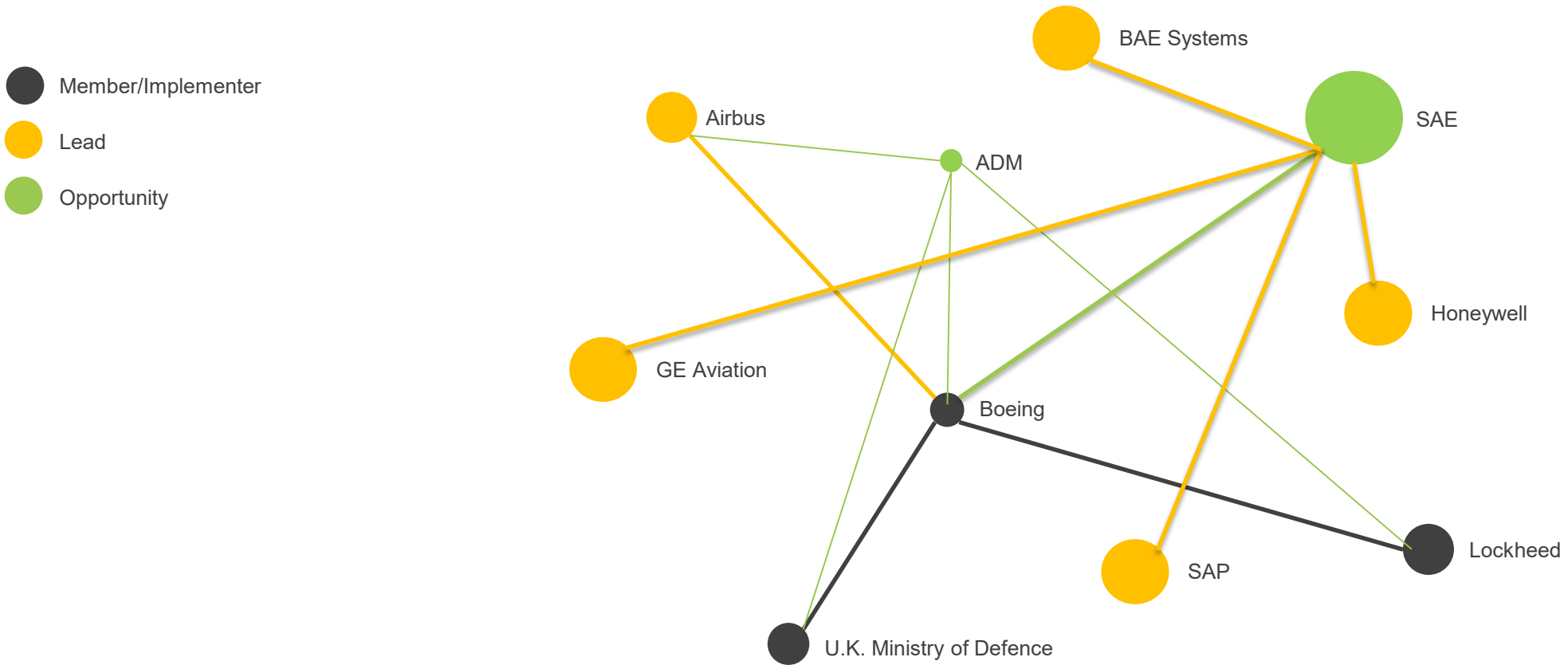
I Heart OAGi

- Since 1994.
- 2019 marks our 25 year anniversary!
- Something older than me!?!
- The excitement of being involved in tomorrow.

A Rock Solid Existing User-Base



CRM - The OAGi Universe (Aerospace View)



OAGIS and Rapid Inorganic Company Growth

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E2open has a history of App acquisitions but it's significantly accelerating in recent months

- i2 TradeMatrix — 15 Years ago
- ICON-SCM
- Serus — 5 Years ago
- Terra Technology
- Orchestro
- Steelwedge — 2 Years ago
- Zyme
  - Birch Worldwide
  - CCI — 1 Year ago
- Entomo
- Cloud Logistics — Last few months
- INTTRA (*Awaiting regulatory approval*)
  - Avantida

- Supply Management
- Collaborative Manufacturing
- Demand Sensing
- Business Planning
- Channel Shaping

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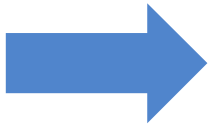
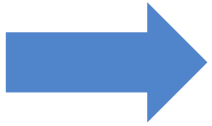
A Phased Integration Approach

- Loose Integration
  - Remote DC
  - E2open B2B Client
  - File-based exchanged
  - Native formats
  - Maintain existing integration investments
- Tight Integration
  - E2open DC
  - RESTful API integration
  - Native formats
  - Deprecate integration layer



Possible within days of acquisition



Dependent on DC move and extent of acq. integration capabilities

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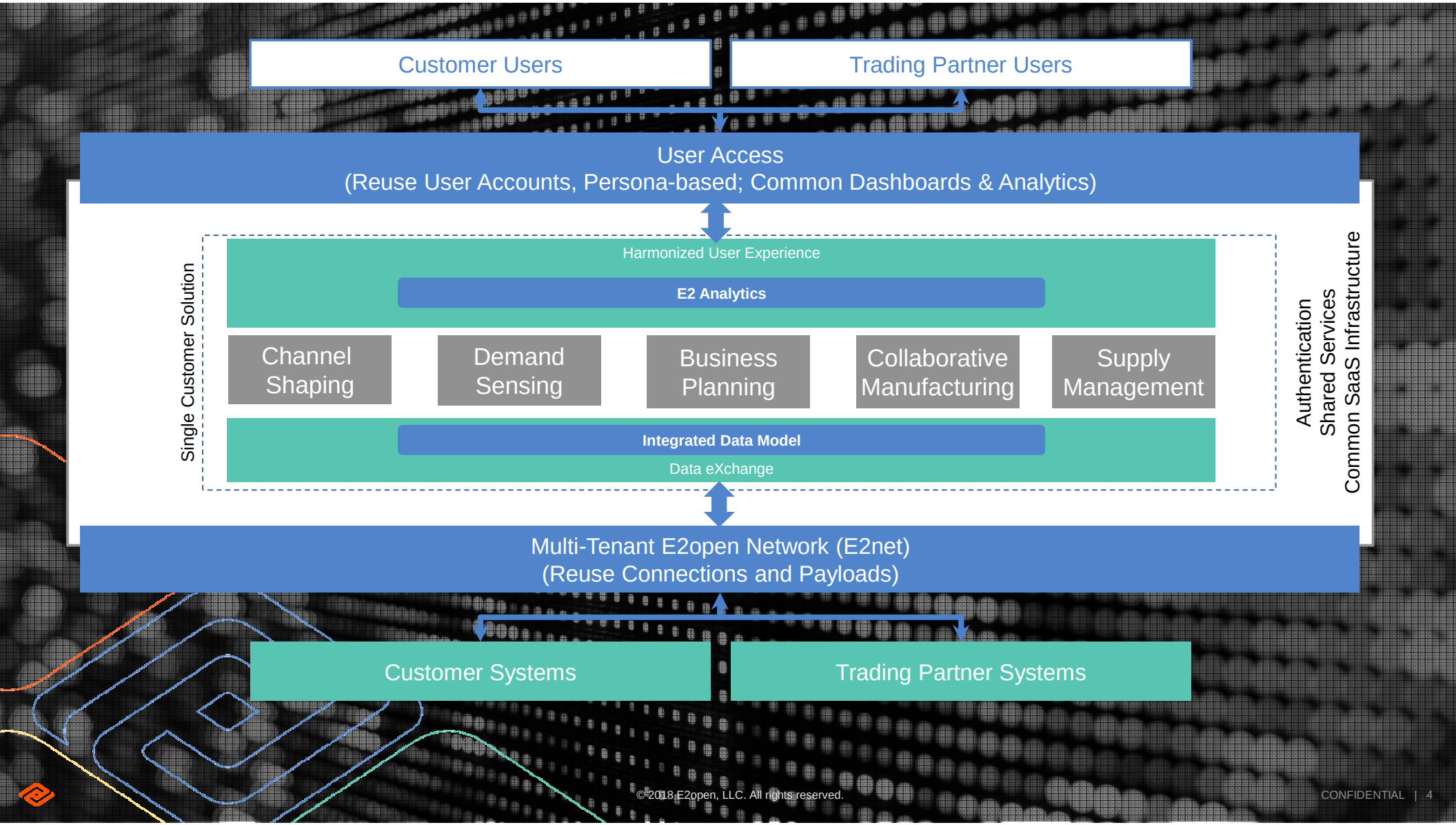

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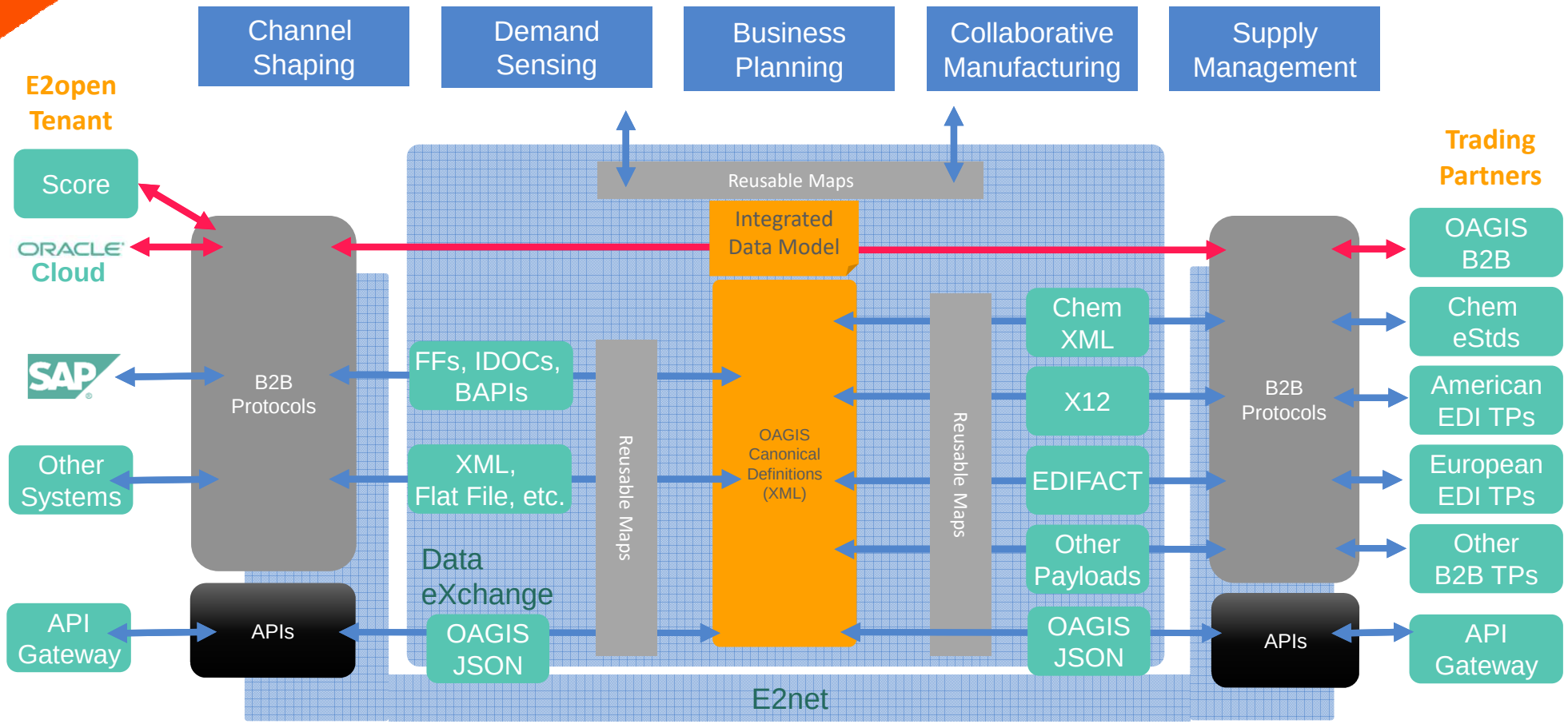
Canonical Information Architecture



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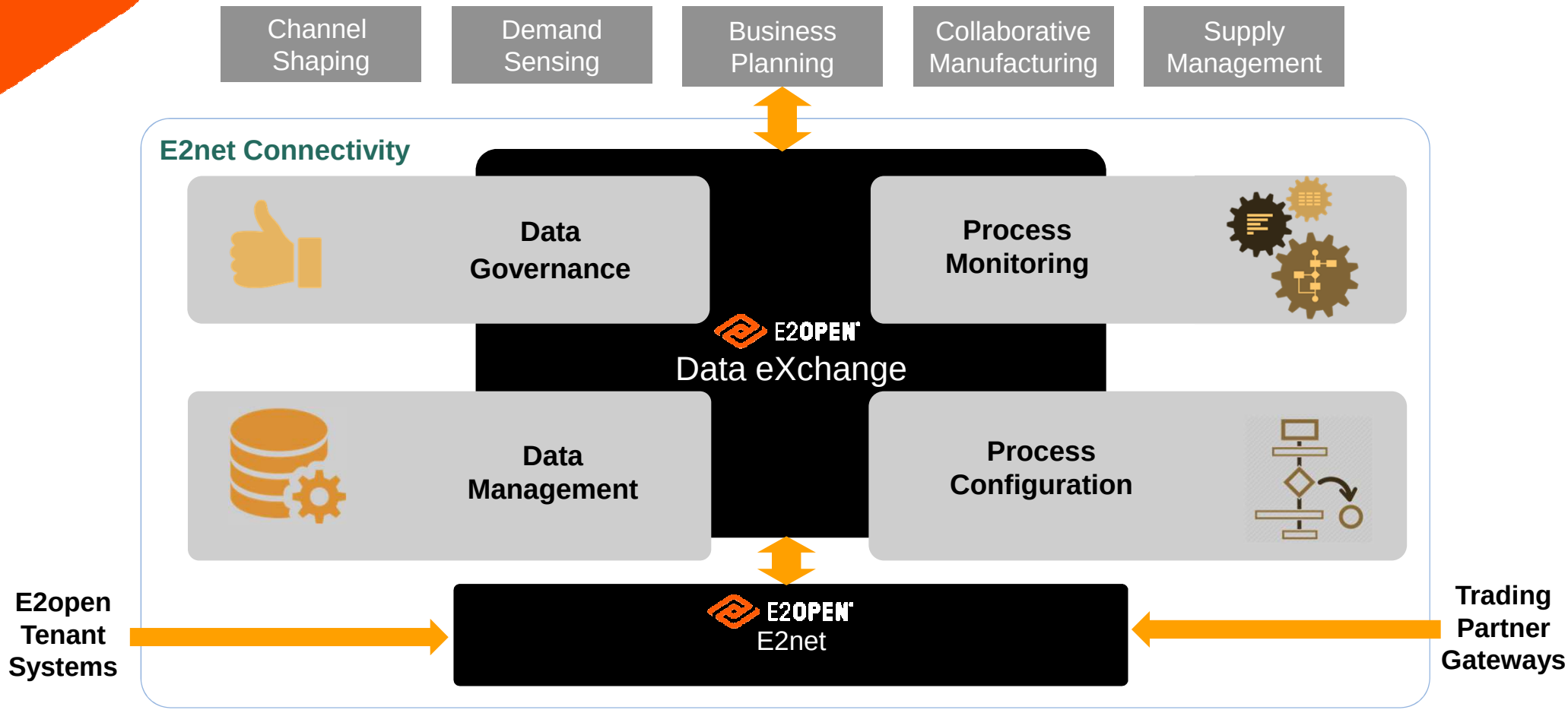
E2open Data eXchange



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Who does the work of defining the Integration Solution?

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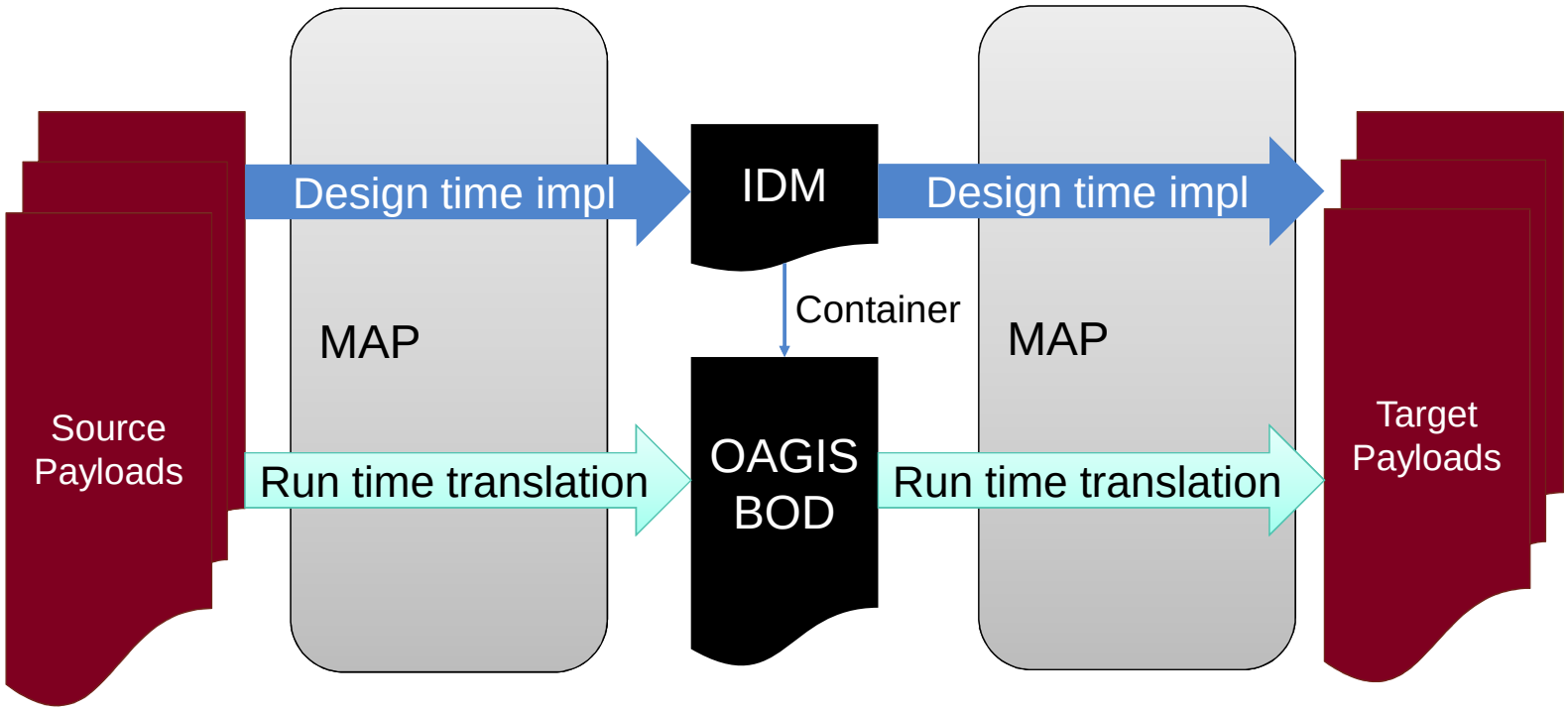
IDM is a “profile” of OAGIS



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Approach for Integration Asset Configuration

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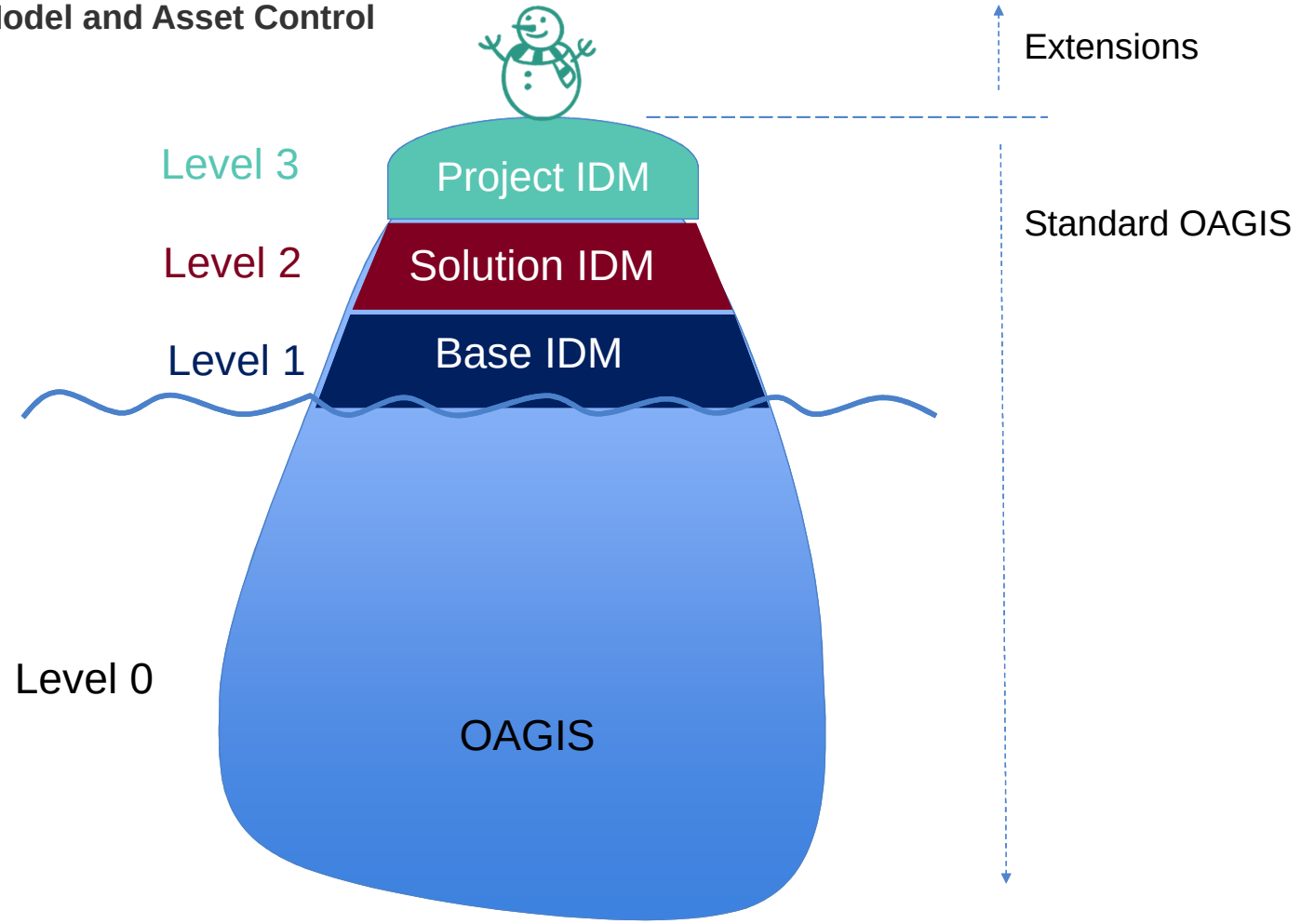
OAGIS as an iceberg

Layered Model and Asset Control



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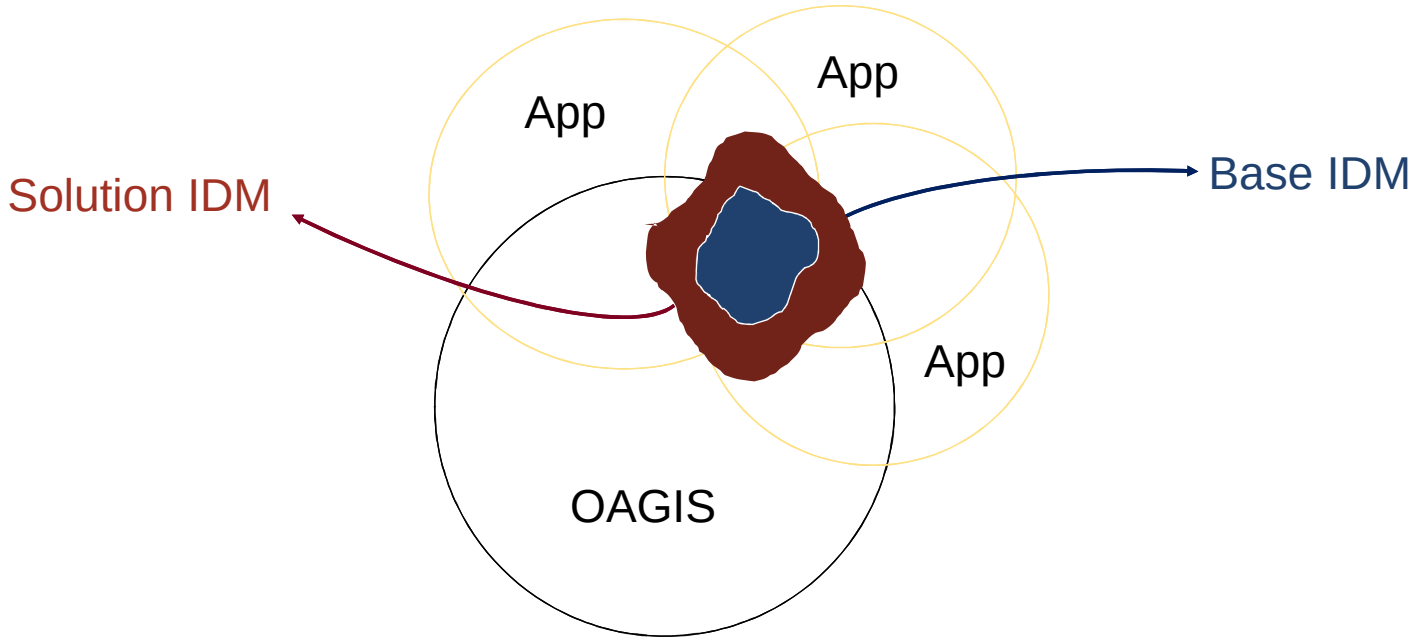
Layered Model and Asset Control



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Persona-based Layered Asset Management Access Controls

PS and SI users

Product Solutions

DX Dev & PM

Project

Solution

Base

Document Configurations
Maps
Filters
Fixups
Lookups
.....

All integration assets are seeded by dev (**B**), enhanced by Solutions (**S**) and configured by PS/SI users to meet specific customer requirements (**P**)

Layering promotes inheritance, versioning and allows migration/upgrades to be instrumented

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Documentation approach

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Summary

- Manage the Canonical
  - Profile down OAGIS to define IDM
  - Profile up OAGIS to expand IDM
  - Extend OAGIS when customer requirements can't be modeled in OAGIS
  - Layered permissibility model
- Map to/from IDM for external and internal App
- Export documentation of maps and profiles

- Connect to Apps and E2net
- Define and Execute BPMN workflows
- Persist, augment & filter data in flight
- Meta data architecture
  - Easily upgrade underlying OAGIS version
  - Uplifting of maps and configurations

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Demo

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MediLedger Project:
Pharma Blockchain Supply Chain Platform

An Open and Secure Network for Managing the Chain of Custody of Prescription Medicine

November 2018

Confidential and Proprietary

AGENDA

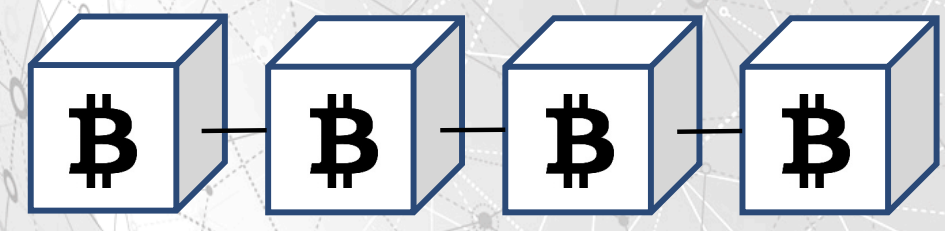
1 WHAT IS BLOCKCHAIN? (And what it isn't)

2 PHARMA USE CASE: MEDILEDGER

3 Q&A

BLOCKCHAIN BASICS

- Basis for Bitcoin and other Cryptocurrencies
- Bitcoin: the first blockchain, was released in ‘08-’09 by “Satoshi Nakamoto”
- Distributed ledger versus central database
- Composed of blocks of data that are chained together with cryptography
- Extremely difficult to change a block once recorded



THE BASICS: KEY CONCEPTS

TRANSACTIONS

Actions between accounts

DIGITAL SIGNATURES

Verify possession of private key by person or thing initiating transaction

BLOCKS

All transactions in a defined time period, e.g., Bitcoin 10 mins

CRYPTOGRAPHIC HASH

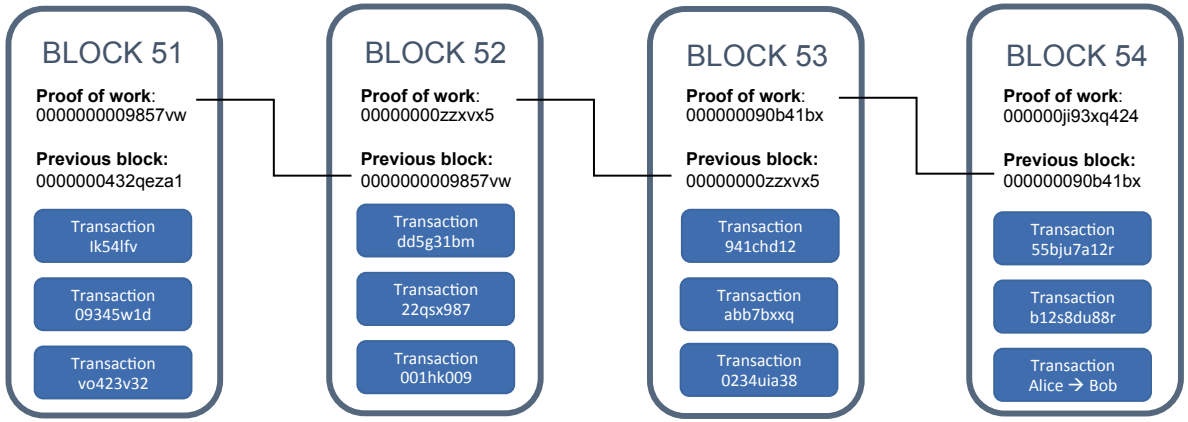
A function that can be used to map data of arbitrary size to data of fixed size. A hash function is designed to be one-way.

CHAINING OF BLOCKS

Block 51 and all its transactions are hashed and included as input into Block 52

CONSENSUS

A way to verify transactions through Proof of Work, Proof of Stake, etc.



THE BASICS: ENTERPRISE BLOCKCHAINS

Different from public blockchains in the following ways:

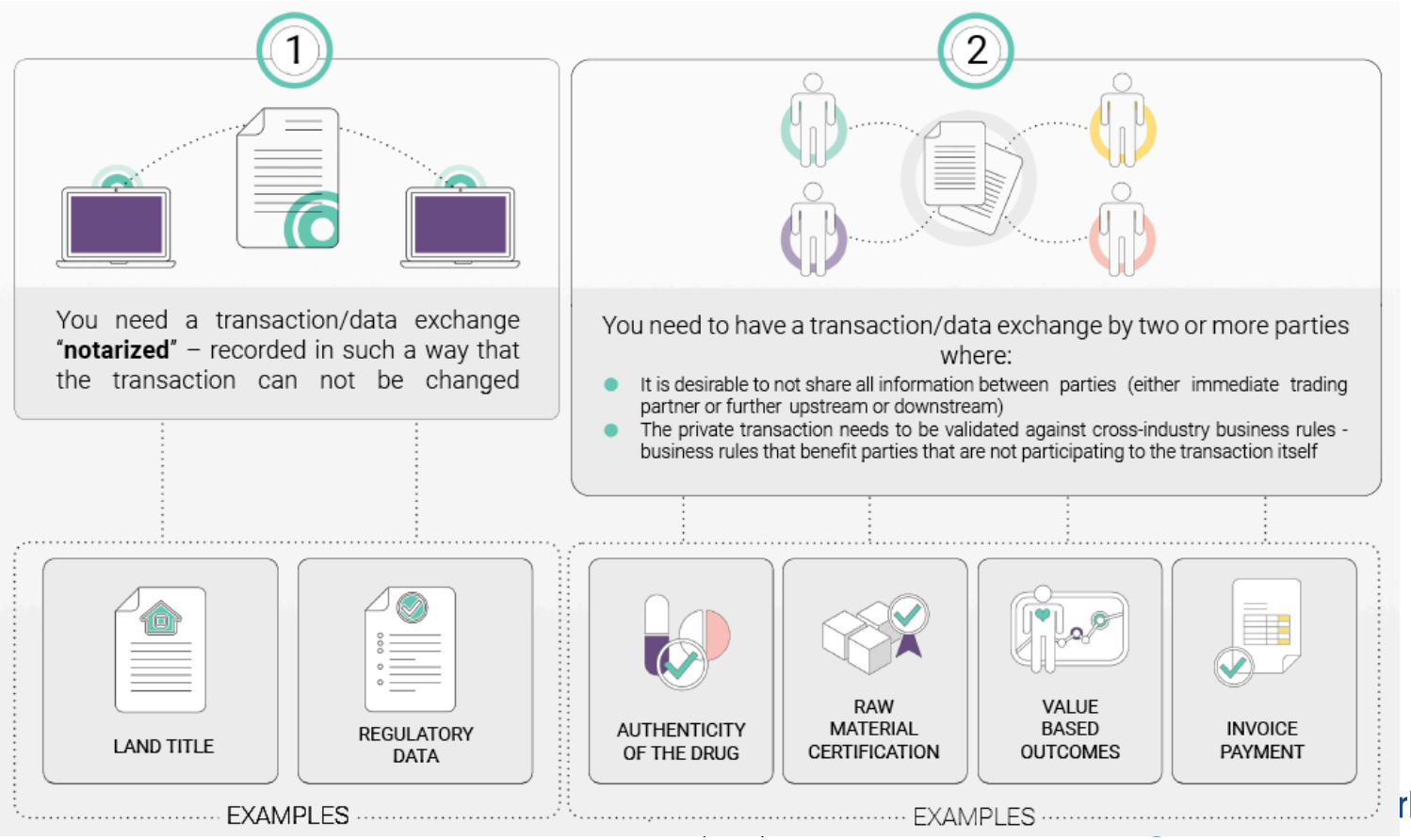
Consensus: Uses more scalable algorithms with simple consensus mechanisms; no need to waste electricity with proof of work

Permissioning: Validators are “invited” or “approved” to join network; typically representatives of the industry

Scalability: By relaxing certain requirements (e.g., consensus algorithm, PoW), scalability is much higher

Privacy layer: Transactions and their data can be shared amongst the involved parties only, so this can become a true enterprise-grade solution

When to Use a Blockchain? / Do I Need Blockchain?



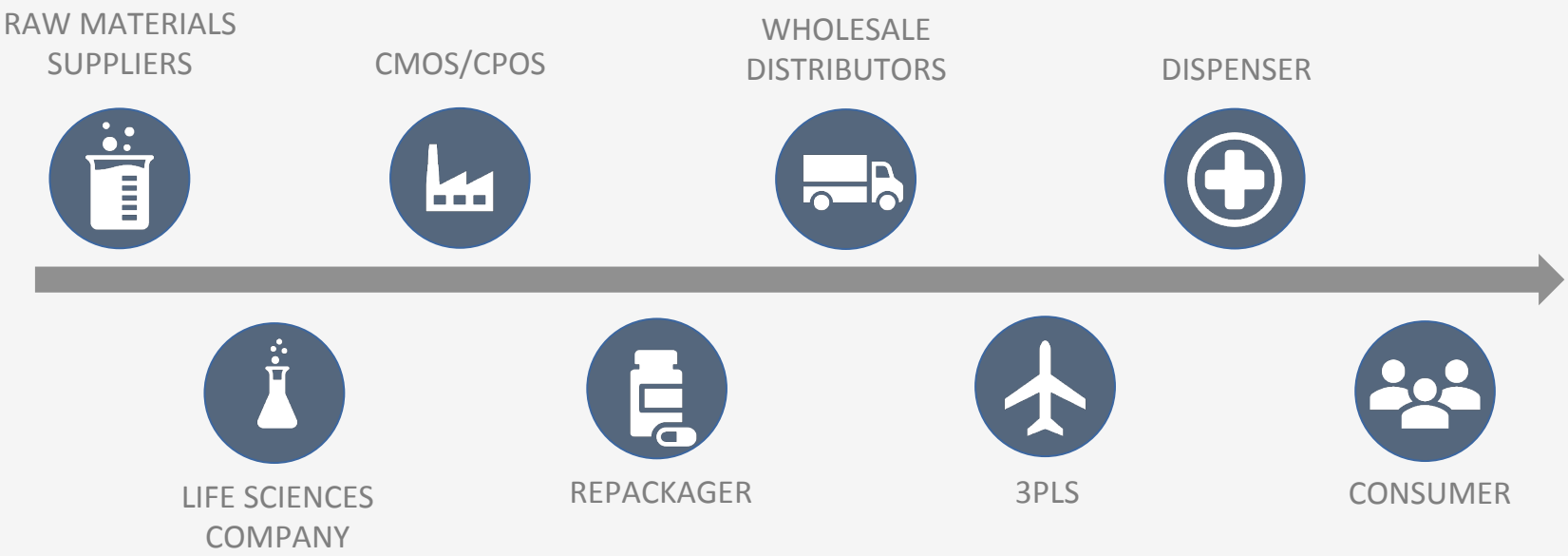
CHRONICLED

MediLedger Overview

MediLedgerProject

PROBLEM STATEMENT

Prescription drugs follow many paths with no visibility to where each drug unit has been.



Global legislation is looking to improve this visibility through the implementation of serialized product and track and trace requirements of those serial numbers through the full supply chain.

MEDILEDGER PROJECT

2017 pilot successfully demonstrated the feasibility of a blockchain solution to meet DSCSA regulations.

Genentech
A Member of the Roche Group

AmerisourceBergen

McKESSON

Pfizer

abbvie

OBJECTIVES

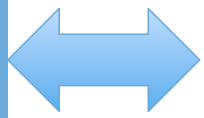
- Create serialization data exchange environment for prescription drugs using blockchain/distributed ledger system
- Determine best business and financial model
- Identify issues with system performance and capabilities
- Define the potential IT architecture
- Recommend a path forward for the industry
- Share knowledge of blockchain and separate reality from hype
- Demonstrate how blockchain technology may be better suited than others to respond to DSCSA requirements and can provide strategic advantages
- Ensure that the solution implemented should be substantially superior to existing ones to enable broader adoption

Working Group Approach

Our work in 2017 took two distinct paths: development of the technical solution, and what ecosystem would be required for the overall industry to ensure convergence to a solution that will be beneficial to all players in the pharmaceutical supply chain

Technical Solution

- Registration and transfer of Custody of a Unique Item
- Data Privacy
- Authenticity Verification & Investigation Provenance
- Exception Management
- Aggregation and De-aggregation
- Performance and Scalability
- System Access / Identity Management



Industry Ecosystem

- What components need to be established for the system to be operational?
- How would governance work? Who runs it?
- How can the we establish an open system architecture?
- What future business process innovation could operate on such a platform?

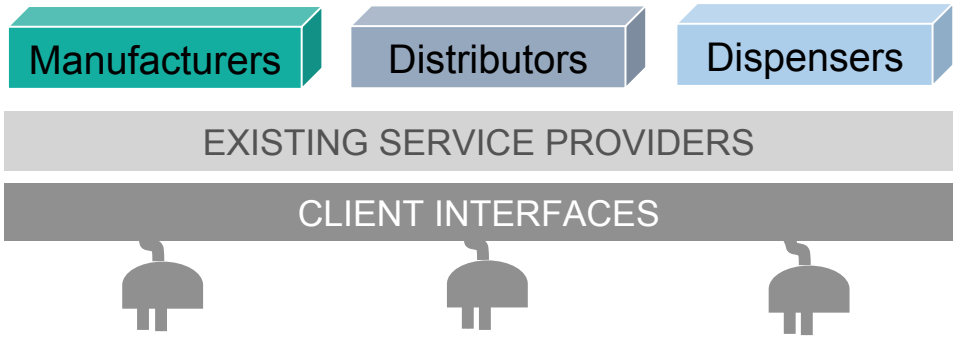
BUSINESS MODEL OVERVIEW

We envision an open software architecture ecosystem consisting of four key components:

- *Open software specifications and shared standards*
- *Nodes operated by a range of industry participants*

1

GOVERNANCE
- Decides business rules
- Establishes software standards
- Oversees operations of pharma utility
- Awards utility contract
- Determines node structure and management



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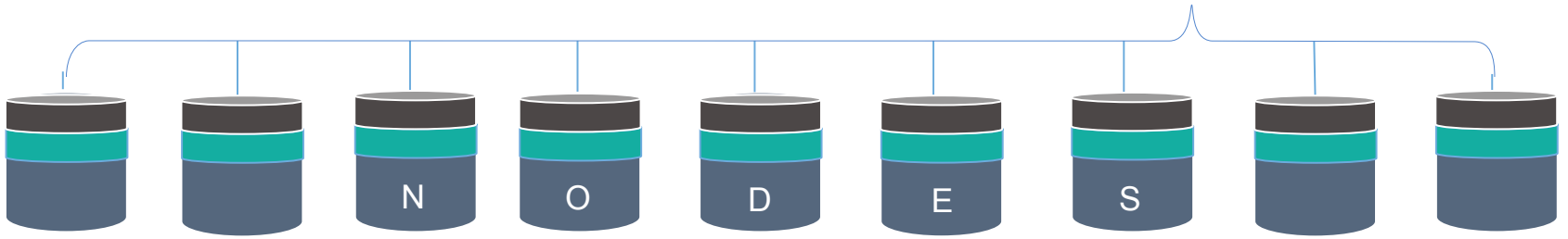
PHARMA UTILITY
- Smart contract version control
- Node operator management
- Financial management
- Capacity and security
- System access / identity mgmt

3



ZERO KNOWLEDGE PROOFS

COMPETING REQUIREMENTS

100% Data Privacy

Information is shared only with the appropriate trading partners.

VERSUS

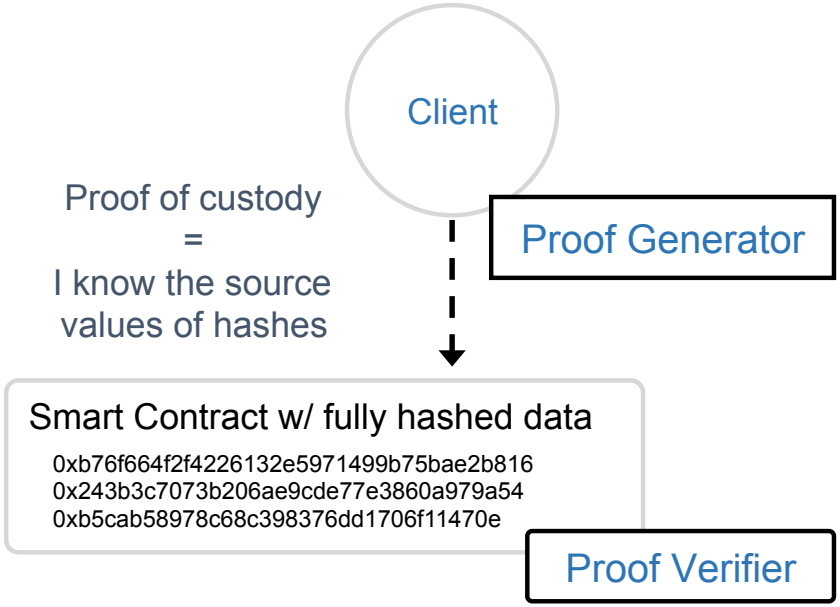
Validated Transfers of Custody

Invalid transactions must not enter in the system. Specifically, SGTIN cannot be double spent and only one trading partner can own an SGTIN at any point in time.

SOLUTION

Zero-knowledge proof

A method by which one party (the prover) can prove to another party (the verifier) that a given statement is true, without conveying any information apart from the fact that the statement is indeed true.



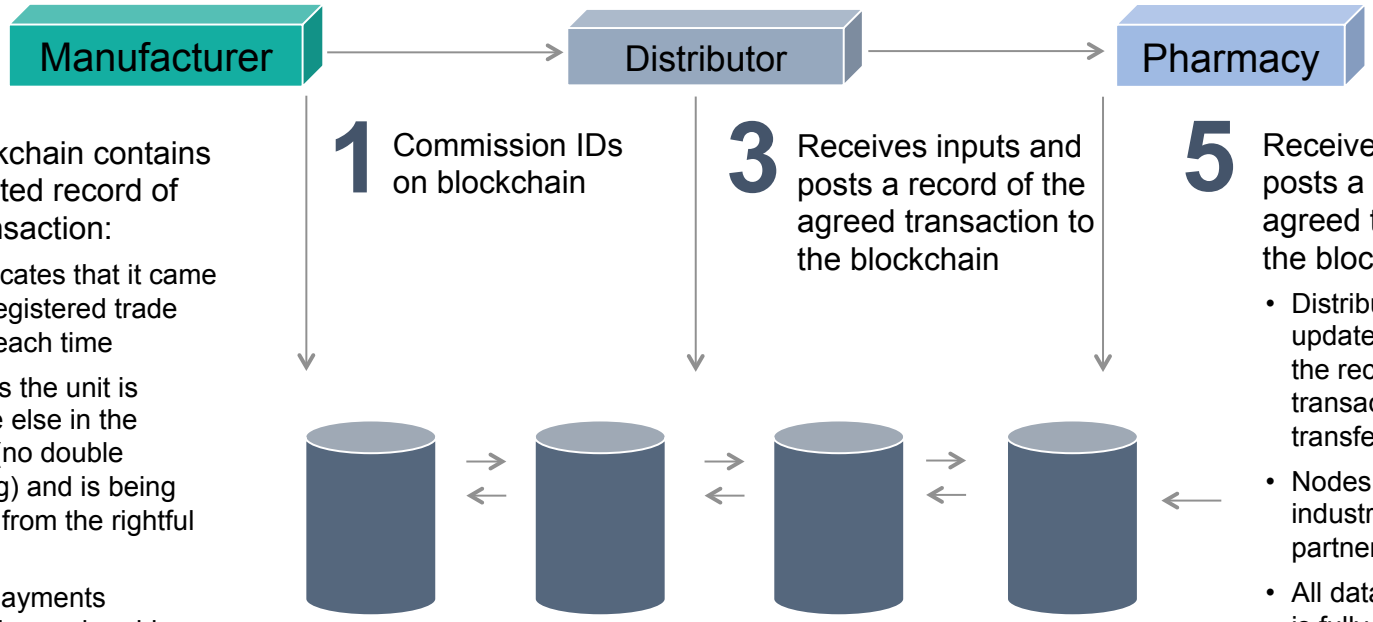
Learn More:
Clean room review of chronicled privacy solution

PROVENANCE TRACKING: HOW DOES IT WORK?

Peer to Peer Messaging Network - connections to all network participants set up automatically

2 Ships product and sends electronic record of transaction

4 Ships product and sends electronic record of transaction



6 The blockchain contains a connected record of each transaction:

- Authenticates that it came from a registered trade partner each time
- Validates the unit is nowhere else in the system (no double spending) and is being shipped from the rightful owner
- Allows payments automation and rapid response to illicit behavior, recalls, etc.

1 Commission IDs on blockchain

3 Receives inputs and posts a record of the agreed transaction to the blockchain

5 Receives product and posts a record of the agreed transaction to the blockchain

- Distributed Ledger updates each node with the record of all transactions of custody transfer
- Nodes operated by industry and trusted partners
- All data on blockchain is fully hashed to prevent no leakage of business intelligence

QUESTIONS AND ANSWERS