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Pipeline Open Data Standard
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PODS
Next Generation

PODS Overview And Alaska Alignment

Alaska Surveying and Mapping Conference

February 16, 2017

Agenda

- PODS Association Overview
  - Who we Are
  - What we Do
  - Strategic Plan
  - Collaboration

- Relevance to Alaska Mapping Community

- PODS Next Generation
  - Overview and Next Steps
  - PODS Lite

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Who we are

- Steward voluntary consensus standard, developed and maintained by members of the global pipeline industry
    - **PODS Data Model**
- Non-profit with over 170 members
    - includes pipeline operators and industry service providers
    - Collaboration with industry and governmental organizations

PODS Association Strategic Plan

Mission

Develop and advance global pipeline data standards
to support efficient data management and reporting
for the oil and gas industry

PODS Association Strategic Plan

Vision

Become the recognized global leader
in pipeline data standards and best practices
through collaboration with our member community
and the development of pipeline data models
designed with open specifications

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Who we Are
Representative Operator Members

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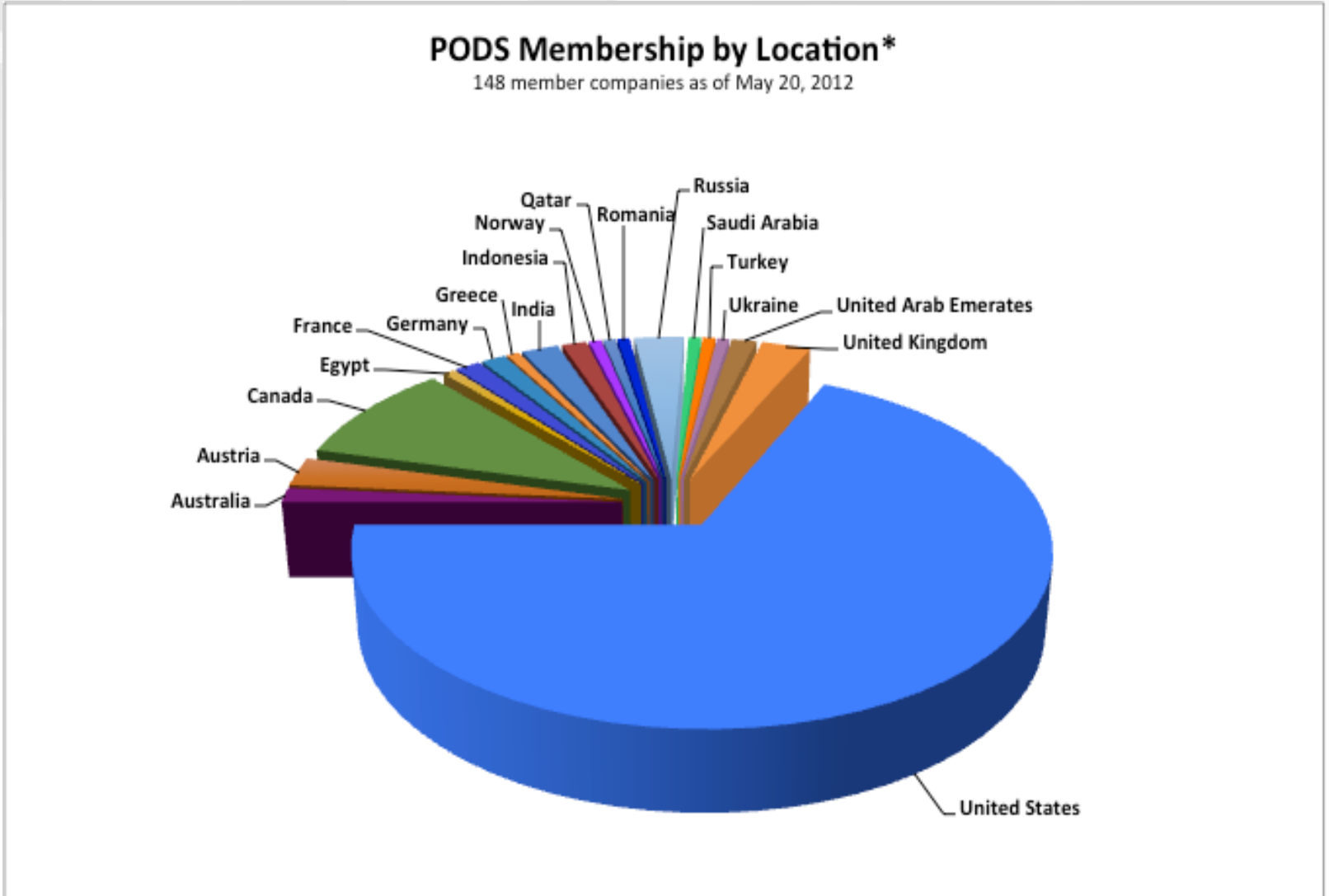
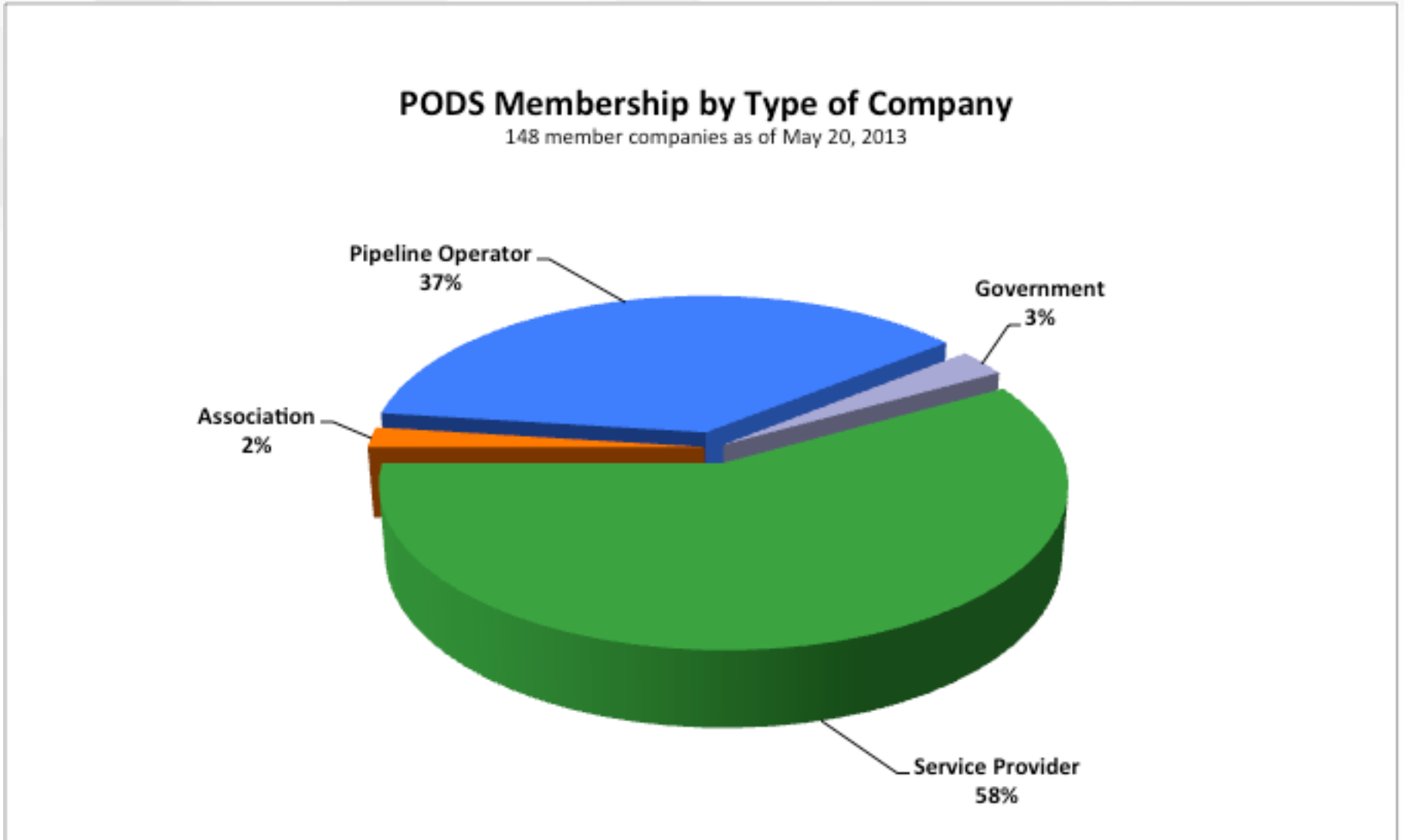
Who we Are
Membership



Who we Are
Membership



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PODS Strategic Goals

Products

- **Goal 1**
  PODS Standards Core
- **Goal 2**
  Interchange Specification

Advocacy

- **Goal 3**
  Stakeholder Engagement
- **Goal 4**
  Standards Implementation Guidance

Strategies

- **Goal 5**
  Governance
- **Goal 6**
  Grow Membership

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Who we are
PODS Data Model

- Started in 1998
- Manages data for:
  - Pipeline assets and condition of asset
  - Geospatial / GIS / mapping
  - Operations
  - Pipeline integrity management
  - Regulatory reporting
- Open standard supporting multi-platform implementation
  - Esri, open source, RDBMS, other
- Major “Next Generation” enhancements in 2017/2018

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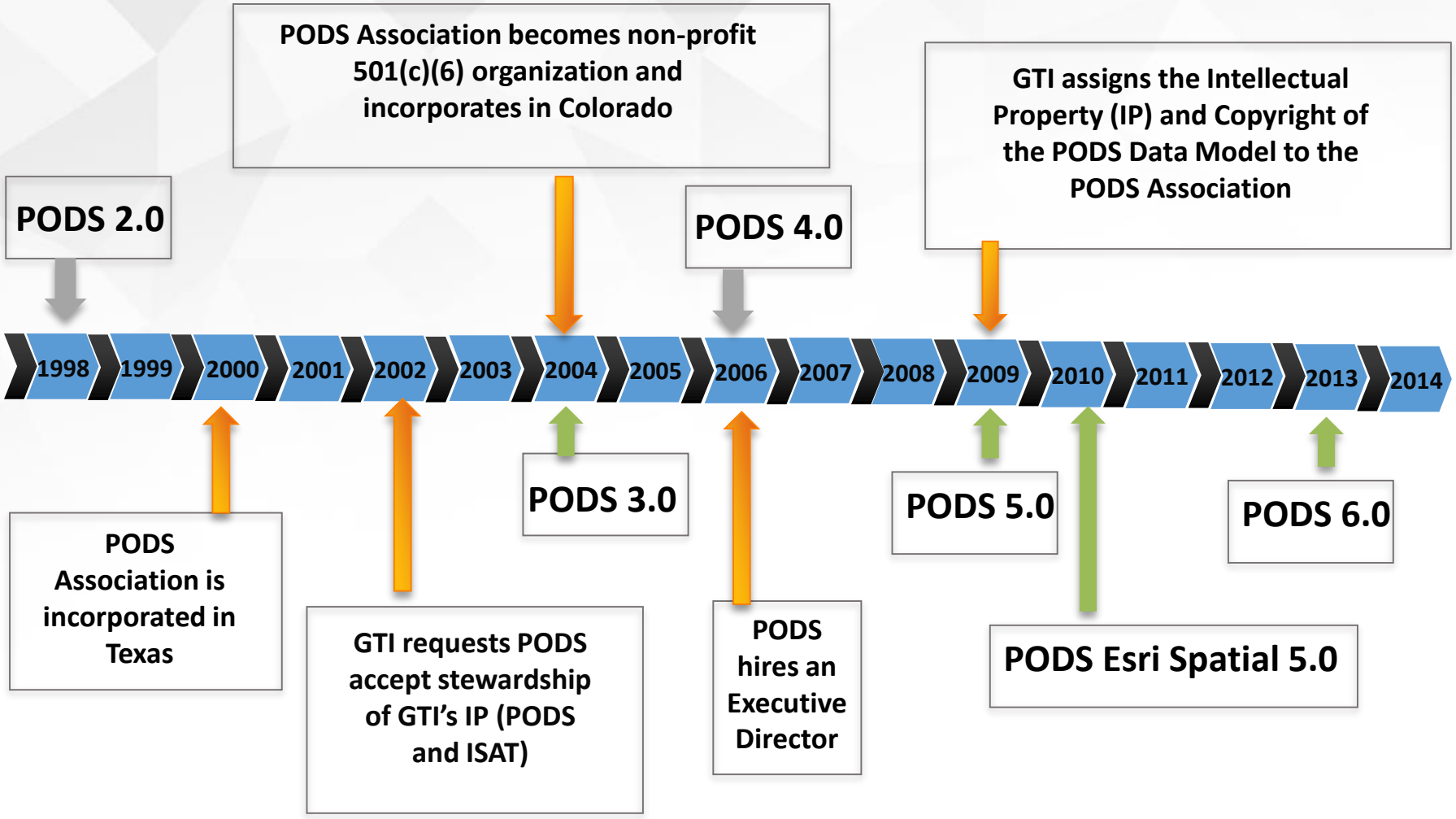
Who we Are Timeline



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Who we Are
Regulatory Drivers

US DOT Pipeline and Hazardous Materials Safety Administration(PHMSA) requires **prescriptive** Pipeline Integrity Management (PIM) practices.

- "Transportation of Natural and Other Gas by Pipeline, Minimum Federal Safety Standards" (49CFR192)

- "Transportation of Hazardous Liquids by Pipeline" (49CFR 195)

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Who we Are
Government Collaboration

PHMSA
Pipeline and Hazardous Materials Safety Administration

- US Department of Transportation
- National Pipeline Mapping System (NPMS)
  - Regulatory management and compliance
  - Inspections, response, analysis
  - Publicly available
- Ongoing communications with
  - Federal Geographic Data Committee (FGDC)
  - US Department of Energy
- Senators Murkowski and Sullivan advocacy and support

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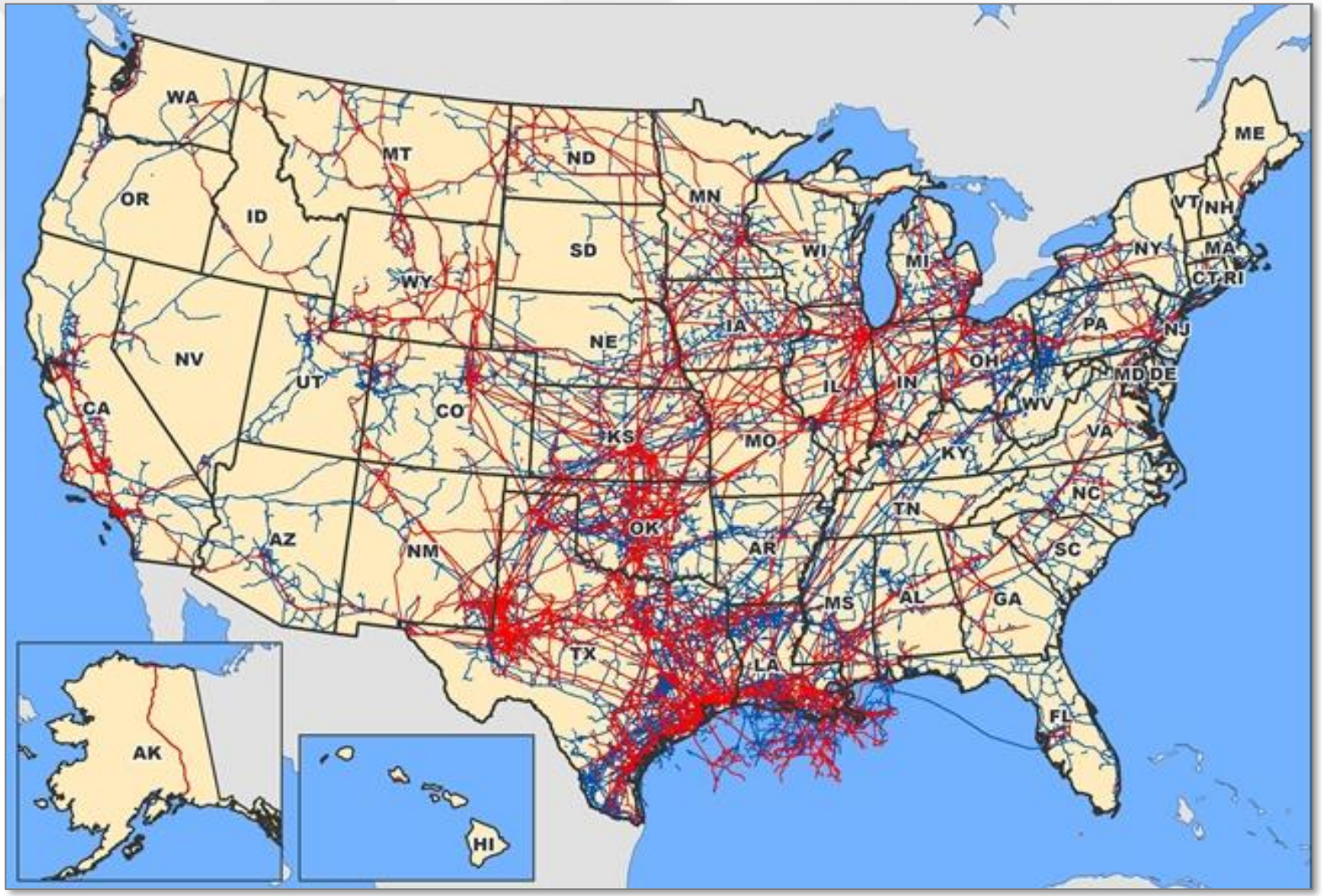
Who we Are
NPMS uses PODS Data Model



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Who we Are
Industry Collaboration

- Esri – PODS Collaboration
  - Ongoing participation for several years
  - Contributors to PODS Data Model
  - Participation on PODS Working Groups
- Esri ArcGIS Pipeline Referencing (APR)
- PODS Data Model can be used in Esri APR Solution
- Feb 2017 – **PODS Lite for APR**

esri™

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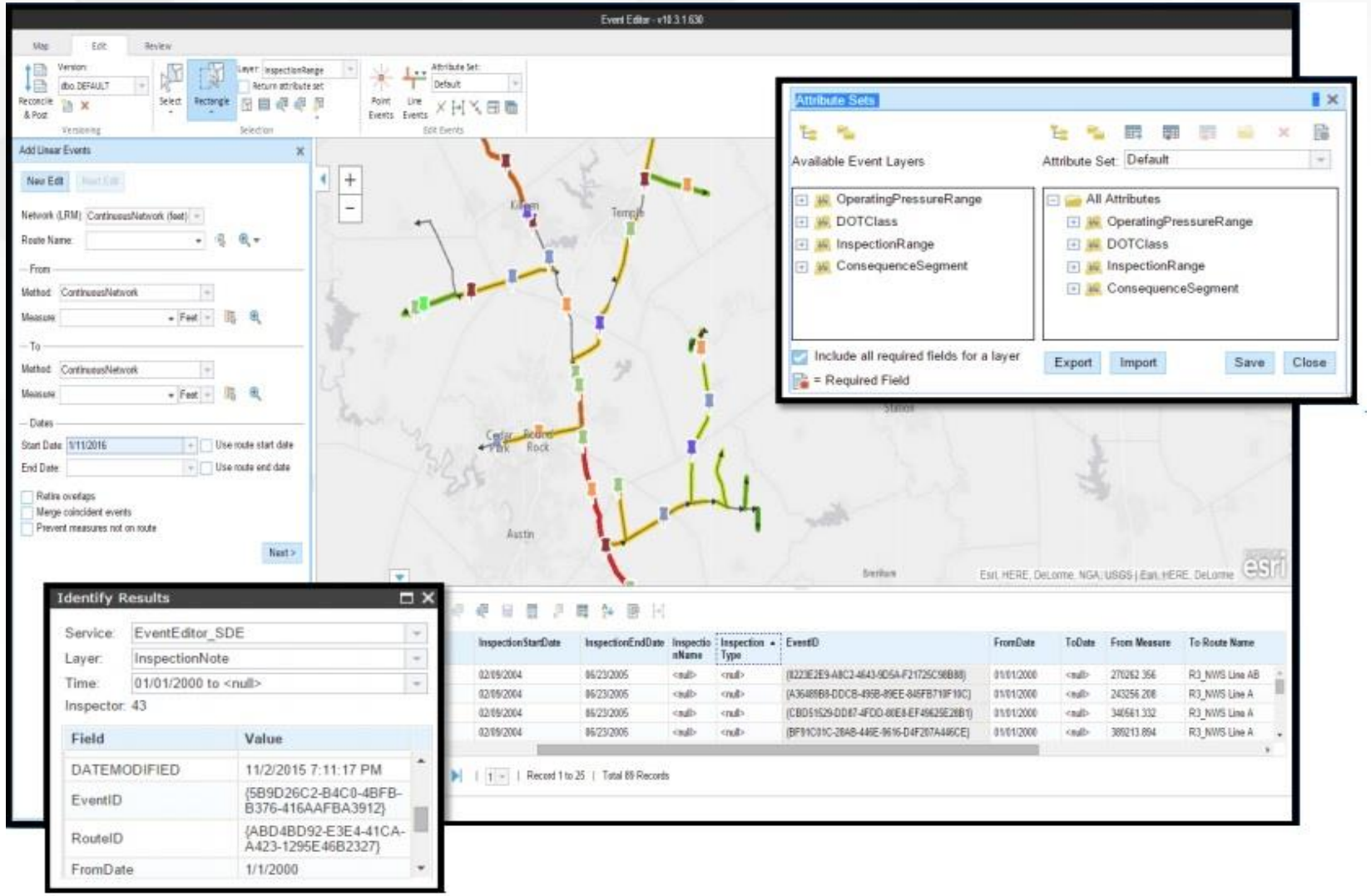
PODS and Esri
ArcGIS Pipeline Referencing (APR)



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- **Relevance to Alaska Mapping Community**

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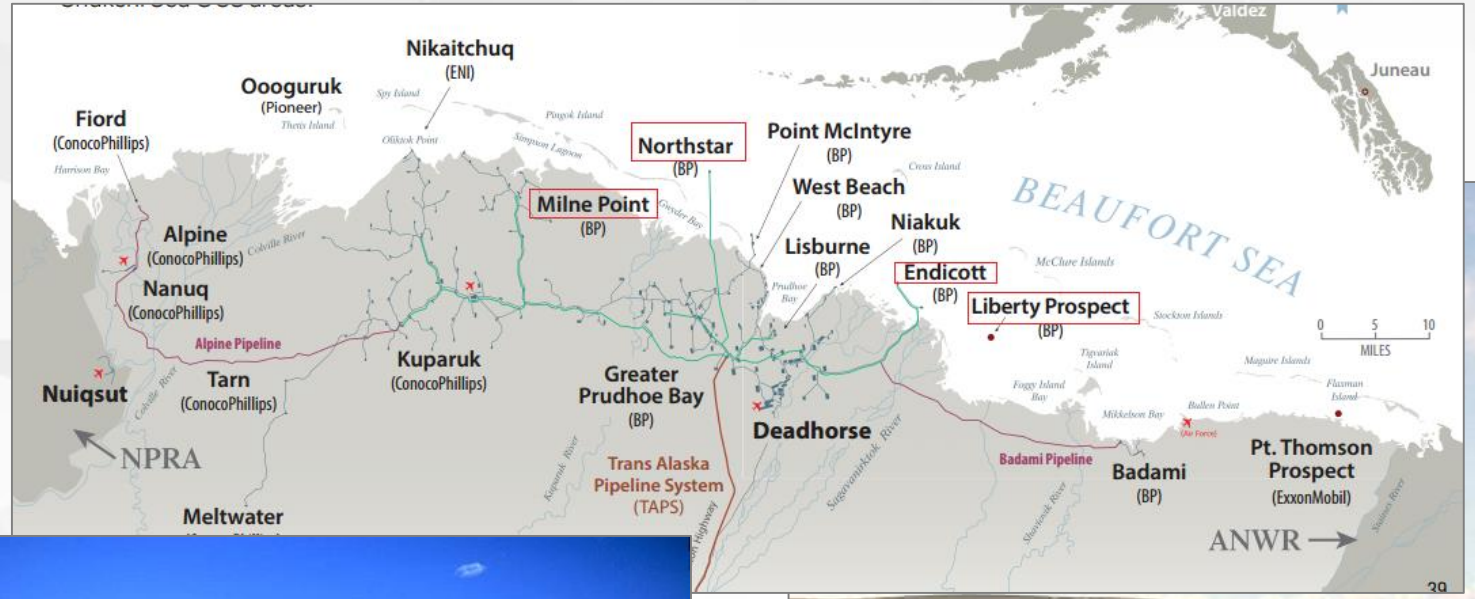
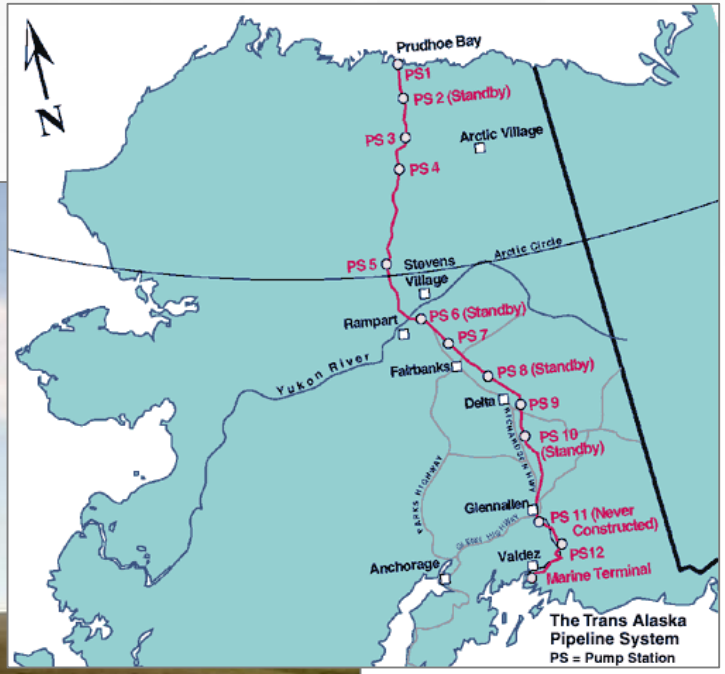
PODS and Alaska





PODS and Alaska
Alignment with AGC Objectives

- Pipelines are a significant part of Alaska's built infrastructure
- Including pipelines in an Alaska Geospatial Data Clearinghouse
- NPMS Parallels
    - PODS Data Model
    - New PODS Data Exchange Specification
- Shared Goals with the Alaska Geospatial Council (AGC)
    - Eliminating redundant expenditures
    - Modernizing geospatial holdings and infrastructure
    - Fostering data sharing
    - Making data widely available

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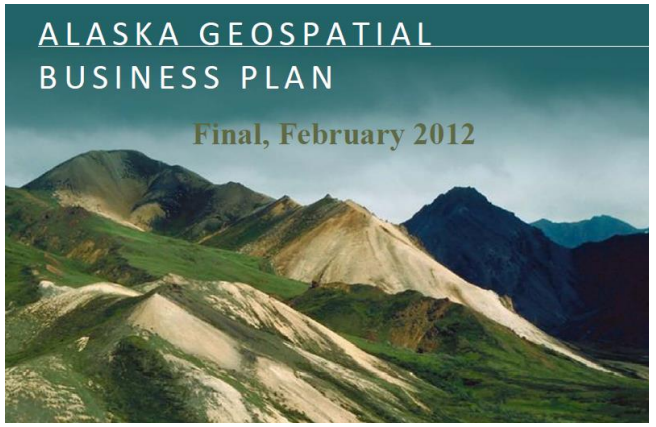
PODS and Alaska
Alignment with Alaska Strategic Plan

- “Establish standards for geospatial data through stakeholder driven process”
- “Adapt best practices for collaborative data collection, management and distribution”
- “Provide a unified [portal] for access to geospatial data, leveraging existing capabilities”
- “Evaluate and promote the application of new best practices and technologies”



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  - **Overview and Next Steps**
  - **PODS Lite**

PODS Board is Committed to Change

- **“Next Generation” – Transformation of the PODS Standard**
- Lessons learned from users of the Standard over 18+ years
- Exponential growth of data
- Expanded regulatory reporting requirements (PHMSA and FERC)
- International and US partners
- Changes in technology

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Benefits of Next Gen Transformation

PODS
Next Generation

- Achieve greater agility to build and extend the data model
- More effectively interoperate
- Share pipeline data quickly and easily via a new XML-based **Data Exchange Specification**
- Single logical model feeding multiple platforms
- Intuitive and well-defined business rules
- Optimized and improved performance
- Adoption of open and international standards

Next Generation Scope Overview

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PODS Next Generation

Documentation
Logical Data Model
Data Dictionary
Governance (Model Usage, Editing Standards, Data Content Specification)

Reference Modes
Continuous (2d/3d),
Interrupted (2d/3d)
Referent Point and Offset (Milepost)
XYZ
Odometer

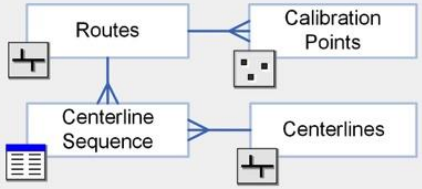
Software
Schema / Template Creation
QA/QC
Module Data Loader
Module approval and documentation

Best Practices
Schema/Module Specification, Definition, Creation and Validation
App Specification, Creation and Validation
Managing History, Work Orders, Documents, Re-Routes and Activities
Feature/Condition Provenance
Managing Metadata
Module Management
Data Exchange

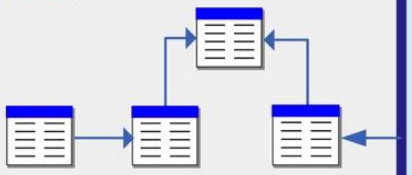
Business Intelligence
Presentation Layer, API

Meta Tables

Core Linear Referencing System

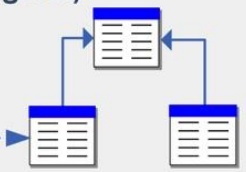


Core Tables



Core Table Reference Data
Look up and conditional domains

Module 1 (e.g. ILI)

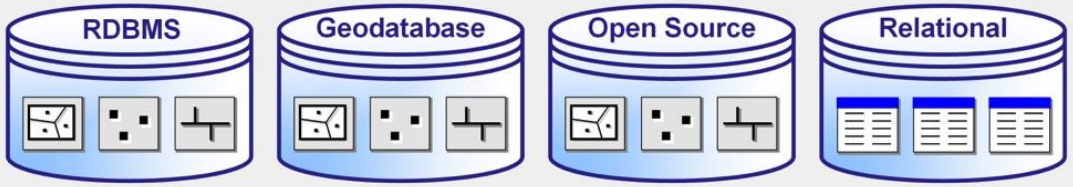


Module Reference Data
Look up and conditional domains

Module ...

Module *n*

Implementation Patterns (Spatial, Relational, Hybrid)



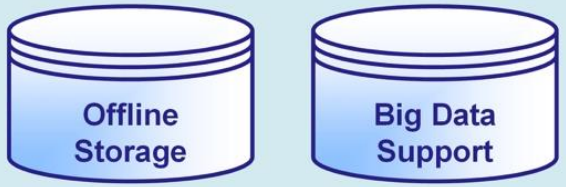
RDBMS Spatial Data Types:
Oracle Spatial
SQL Server Spatial

Esri Geodatabase native data format

PostGIS native data format

Coordinates managed in database tables

History
Definitions and Explanations



Data Exchange Specification
XML, JSON or CSV

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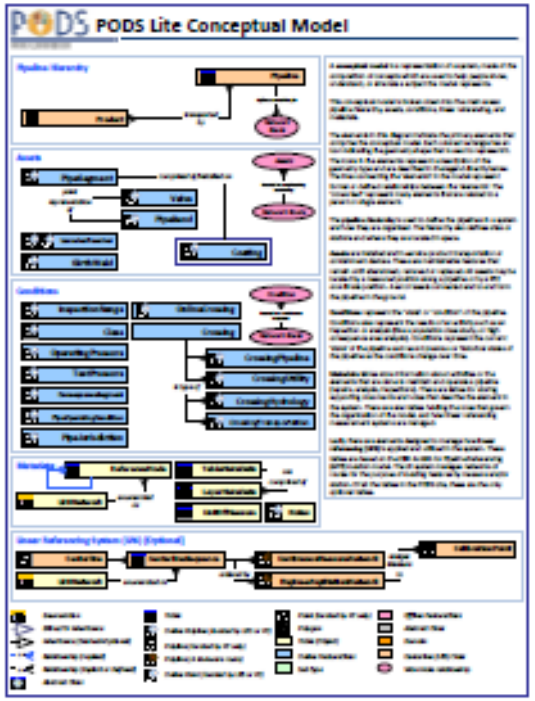
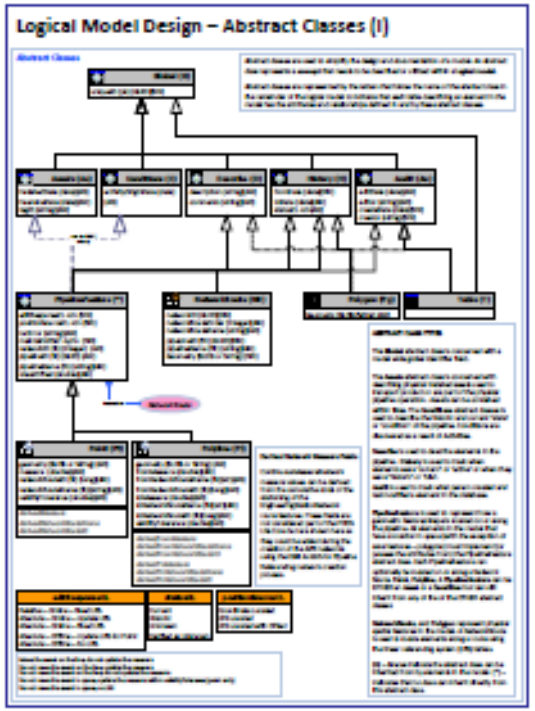
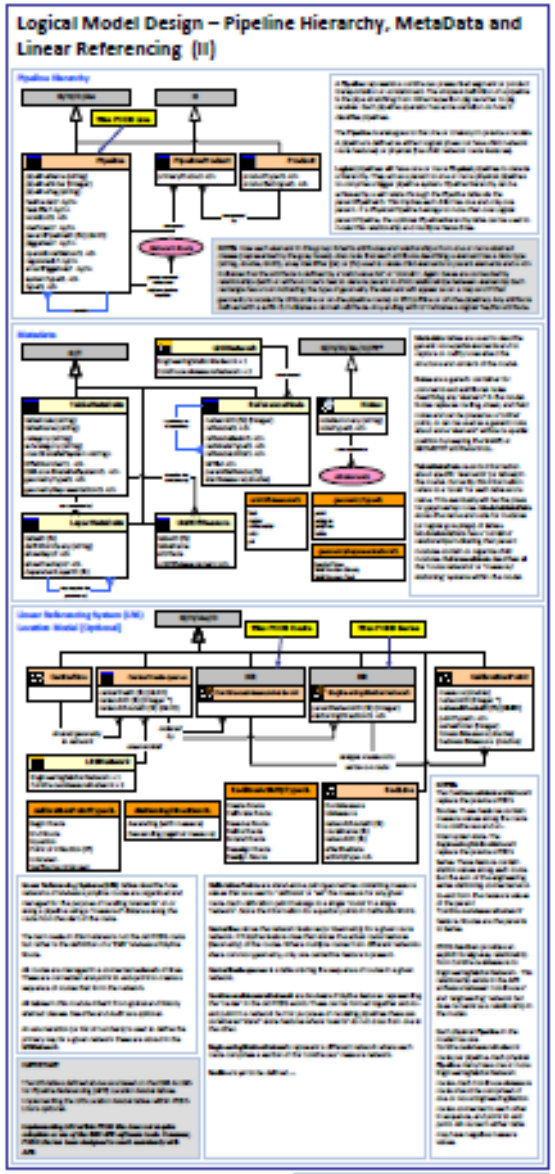
- New Conceptual Model
- Single Logical Model
- Multiple Platforms Supported

PODS

Next Generation

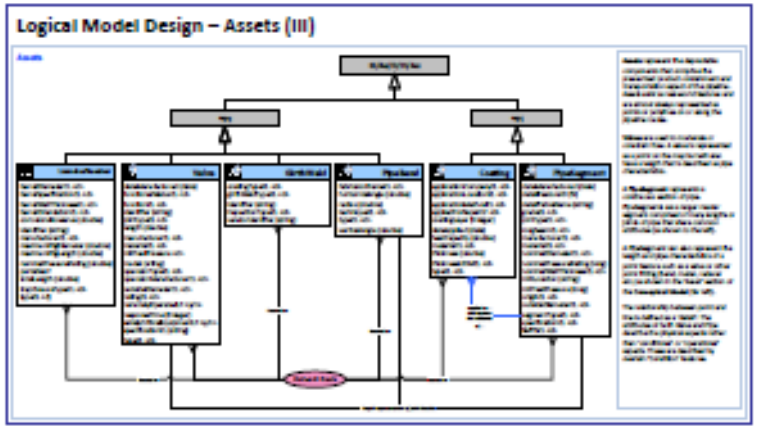


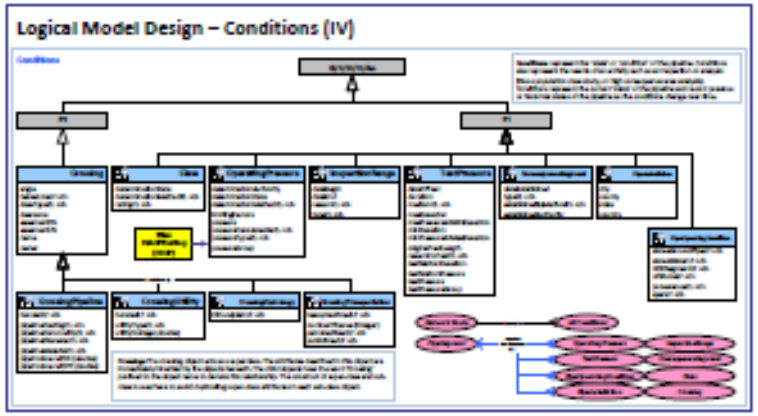


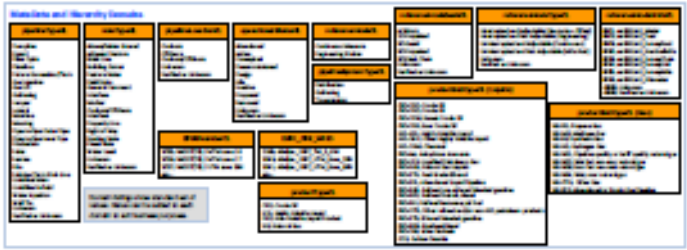


DRAFT

Work in Progress







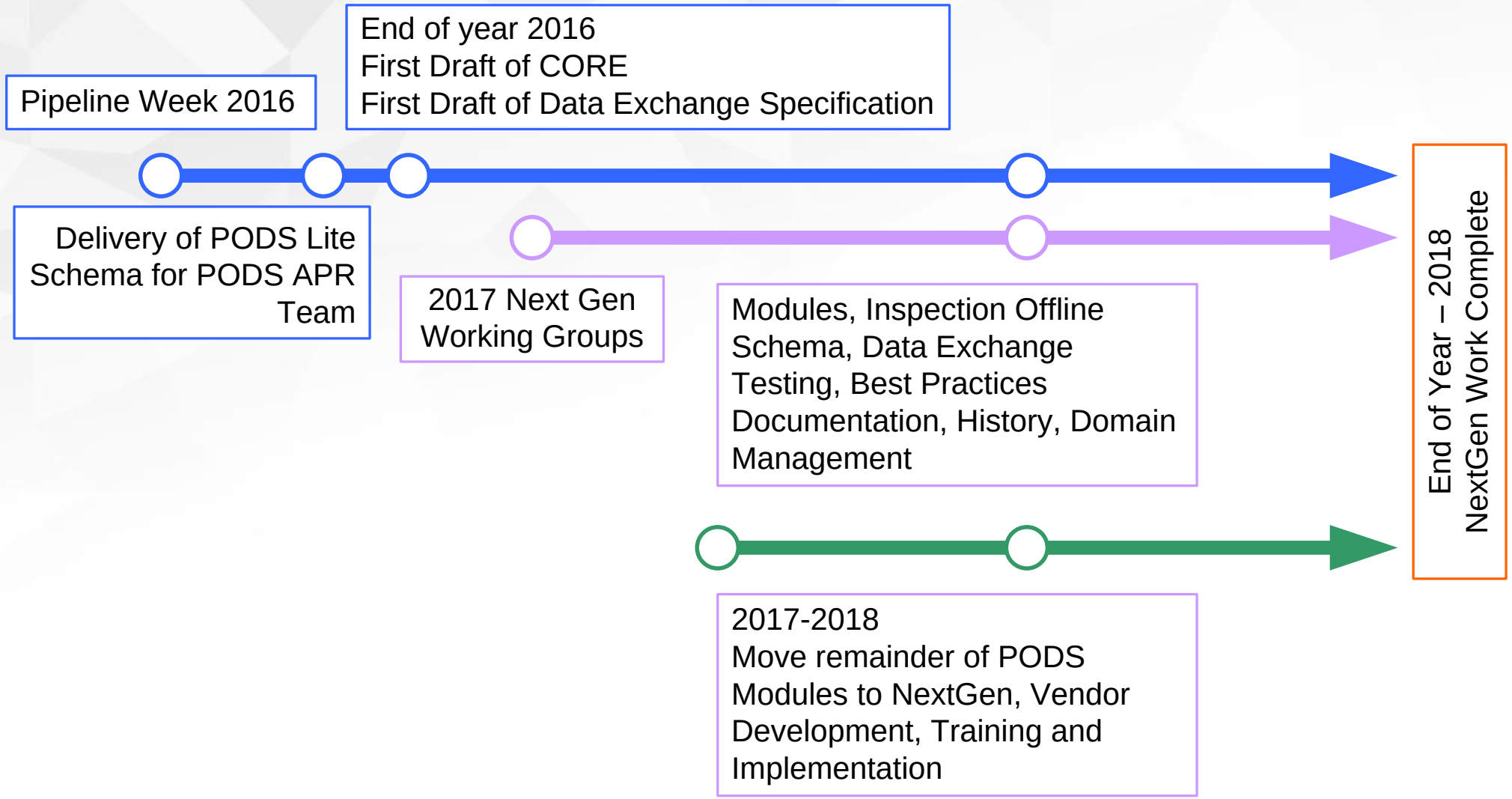
PODS Data Exchange Specification

- Enables exchange of PODS data between users, systems, software and databases
    - Web service-based exchanges
    - Data/file sharing
    - Automated translation between data models/schemas
    - Data validation
- XML based schema definition (XSD)
- Utilizes OGC geographic markup language (GML) and other open standards
- Scalable, flexible, extensible, automated, efficient

PODS Lite

- Free for use by all
- Subset of the full Next Gen PODS Data Model
- Preview of modernized “Next Gen” PODS Standards
- Preview of PODS Data Model version 7.0
- Currently available for Esri ArcGIS Platform and APR
- Soon available for open source databases and GIS, Oracle and SQL Server

What's Next?


Pipeline Week 2016
End of year 2016
First Draft of CORE
First Draft of Data Exchange Specification
Delivery of PODS Lite Schema for PODS APR Team
2017 Next Gen Working Groups
Modules, Inspection Offline Schema, Data Exchange Testing, Best Practices Documentation, History, Domain Management
2017-2018
Move remainder of PODS Modules to NextGen, Vendor Development, Training and Implementation
End of Year – 2018
NextGen Work Complete

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Summary

PODS Next Generation

- PODS as consensus industry standard for pipeline asset management and mapping
- PODS partnerships with industry and government
- PODS alignment with Alaska mapping goals, objectives and activities
- Modernization of PODS Standards
- PODS Lite and Data Exchange Specification
- PODS and Alaska Opportunities

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