Inland ENC Harmonization Group

Vienna, Austria. September 9 to 11 2009

ESRI Maritime

Tom De Puyt – Nautical Solution Manager

ESRI Maritime Technology Mission

Technology Mission:

"To develop GIS solutions based on ESRI technology that support a variety of domains within the broad spectrum of a global maritime economy."

Vision and Strategy

Vision:

Expand ESRI Nautical Solution into global maritime market(s)
Be a world leader in providing enterprise wide GIS based solutions to a variety of sectors including defense, civilian, scientific, academic and commercials industries.
Work with complementary ESRI business units to leverage existing technology, communicate goals and reach out to the global maritime community.

Strategy:

Use strategic projects and services work to develop technology solutions that meet the needs of the maritime global community .
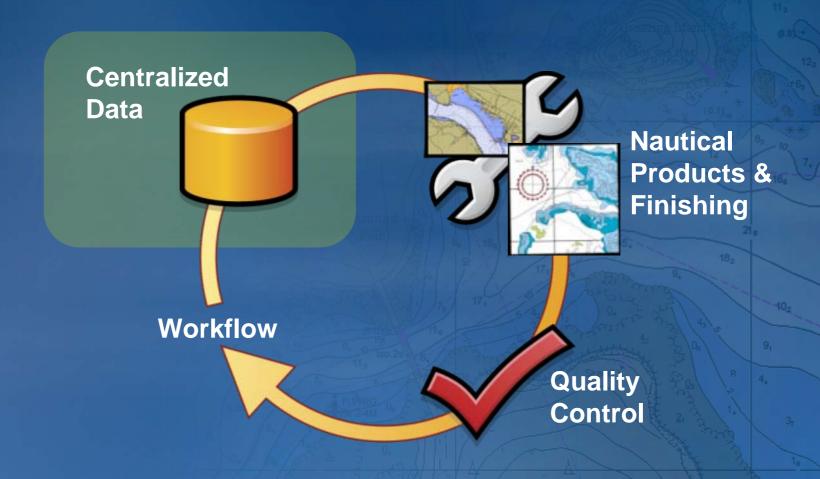
Industry Standards

ISO 9001
Certified

IHO

Compliance
And Leadership

OGC

Interoperability

Challenges of a modern Inland Waterway Authority

- **A modern Inland Waterway Authority faces**
  - Data security and access considerations
  - Flexibility to create or support new products
  - Keeping up with the pace of technology
  - Reduced costs

- **ESRI Nautical Solution provides an operational advantage**
  - With centralized data
  - For product management and nautical tools
  - To manage quality and workflow
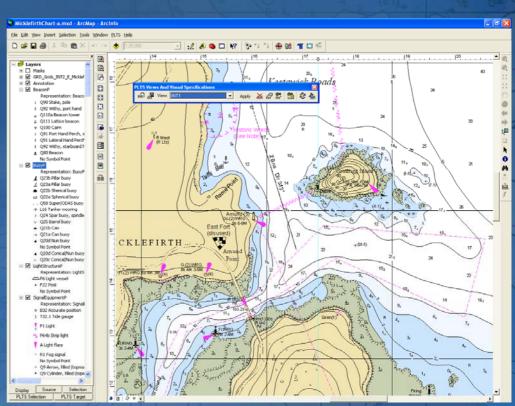
ESRI Nautical Solution technology provides an Operational Advantage

Centralized Data

Nautical Products & Finishing

Quality Control

Workflow

Centralized Data

Nautical
AidsToNavigationP
- BCNCAR_BeaconCardinal
- BCNISD_BeaconIsolatedDan
- BCNLAT_BeaconLateral
- BCNSAW_BeaconSafeWater
- BCNSPP_BeaconSpecialPurpo
- BOYCAR_BuoyCardinal
- BOYINB_BuoyInstallation
- BOYISD_BuoyIsolatedDan
- BOYLAT_BuoyLateral
- BOYSAW_BuoySafeWater
- BOYSPP_BuoySpecialPurpose
- DAYMAR_Daymark
- FOGSIG_FogSignal
- LIGHTS_Light
- LITFLT_LightFloat
- LITVES_LightVessel
- NAVAID_NavigationalAid
- RADRFL_RadarReflector
- RADSTA_RadarStation
- RDOSTA_RadioStation
- RETRFL_RetroReflector
- RTPBCN_RadarTransponderBeacon
- TOPMAR_TopMark
- TURNPT_TurningPoint
- CoastlineA
- CoastlineL

Nautical Data Model

**Features
Topology
Nautical Tables
Domains
Knowledge Base
Rules**

Parenting nautical Products

**Features
Metadata
History
Rules
Cartography**

Multiple Servers

Connecting to other databases

Web

S-57

Bathymetry

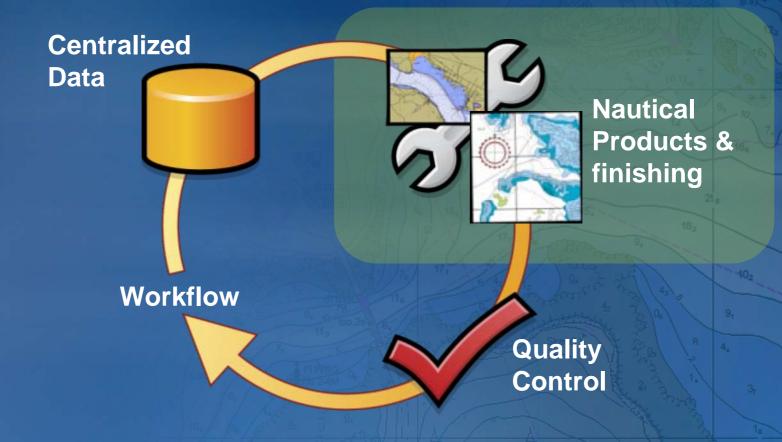Oceanography

Centralized Data technology

- **Leverages existing, proven technology**
  - ArcGIS replication
  - Multi-user editing in a versioned environment
  - ArcGIS archiving and history

- **Common environment**
  - ArcGIS ArcMap

Centralized Data Benefits

- **Flexible and scalable architecture**
  - **Scale banded**
- **Produce multiple products from a single source**
- **Reduce redundant edits**
- **Conflation of features**
  - **Point features**
- **Product neutral**
  - **Can produce new products (not just S-57)**
  - **Database of information, not just navigational**
- **Platform neutral RDBMS**

ArcGIS Nautical Solution technology provides Operational Advantage

Centralized Data

Nautical Products & finishing

Workflow

Quality Control
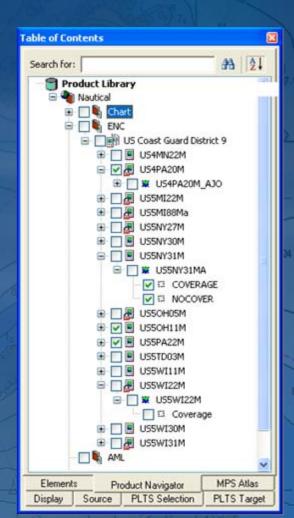
Product Management technology

- **Product Library**
  - Integrated framework within ArcMap for creating, updating and publishing products
  - Configurable with user permissions and roles
- **Product finishing tools**
  - Leverages ArcGIS Representations
  - Symbology in the COTS product
  - Common functionality

Product Management benefits

- **Supported products**
  - Hard copy charts, AML, DNC, ENC, IENC, and Special Purpose charts
    - All products and associated chart documents stored in Product Library
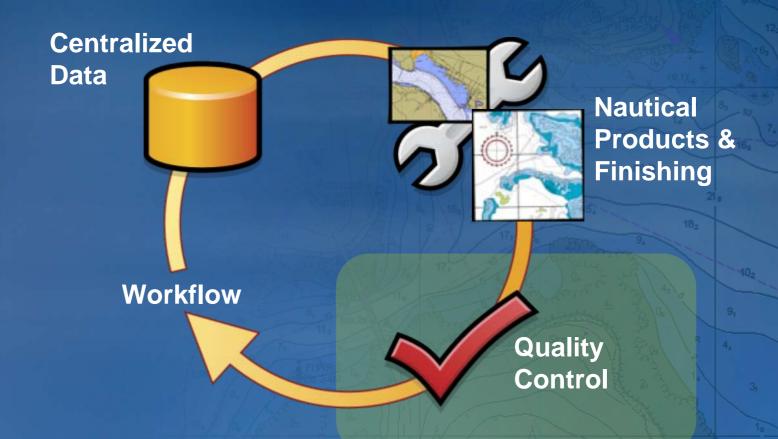   - Extensible data model

- **Cartography**
  - Database driven cartography
  - Configurable and customizable symbols

- **Common work environment**
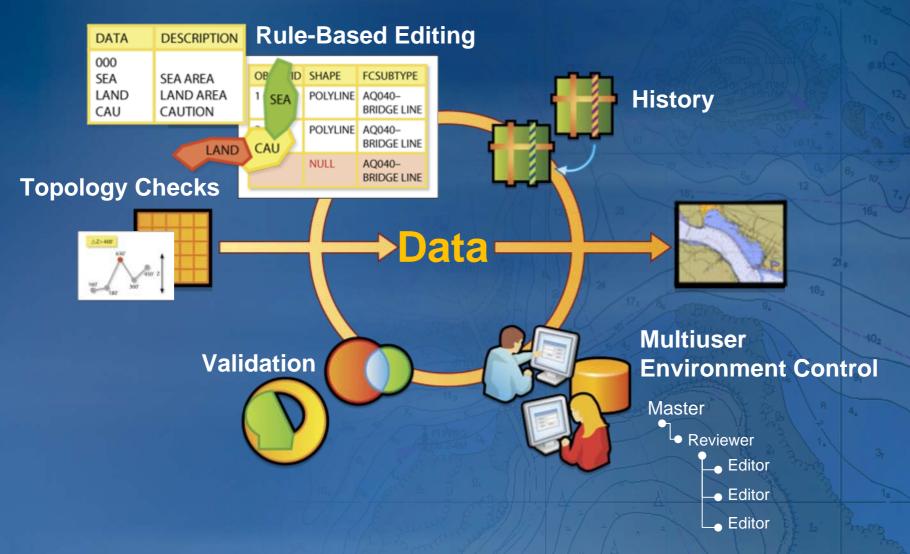 - Editing experience
  - Enterprise vs. Desktop

ArcGIS Nautical Solution technology provides an Operational Advantage

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Quality Control Technology

Rule-Based Editing

DATA	DESCRIPTION
000 SEA LAND CAU	SEA AREA LAND AREA CAUTION

OB	ID	SHAPE	FCSUBTYPE
1	SEA	POLYLINE	AQ040– BRIDGE LINE
		POLYLINE	AQ040– BRIDGE LINE
		NULL	AQ040– BRIDGE LINE

LAND   CAU

History

Topology Checks

Data

Validation

Multiuser Environment Control
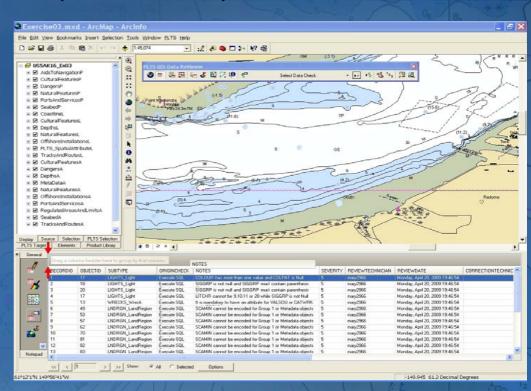
Master
Reviewer
Editor
Editor
Editor

Quality Control Technology

- **Configuration stored in Product Library**
- **GIS Data ReViewer**
  - One interface for reviewing errors (ReViewer Table)
  - Pre-configured S-58 checks
  - Extensible
- **Run-Time validation**
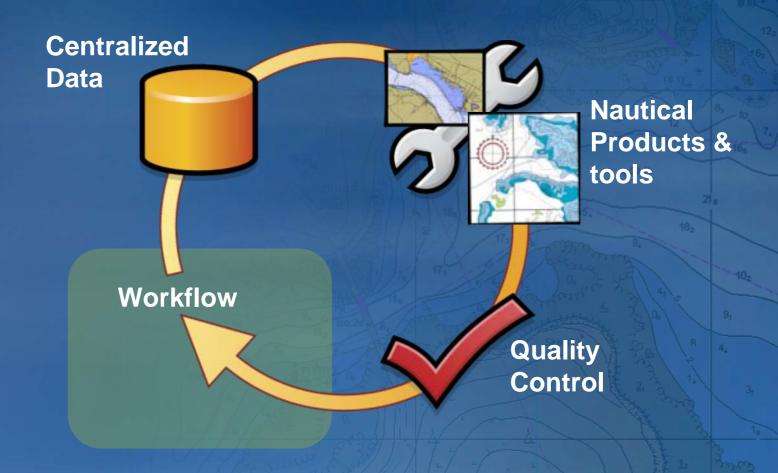- **ArcGIS Archiving**
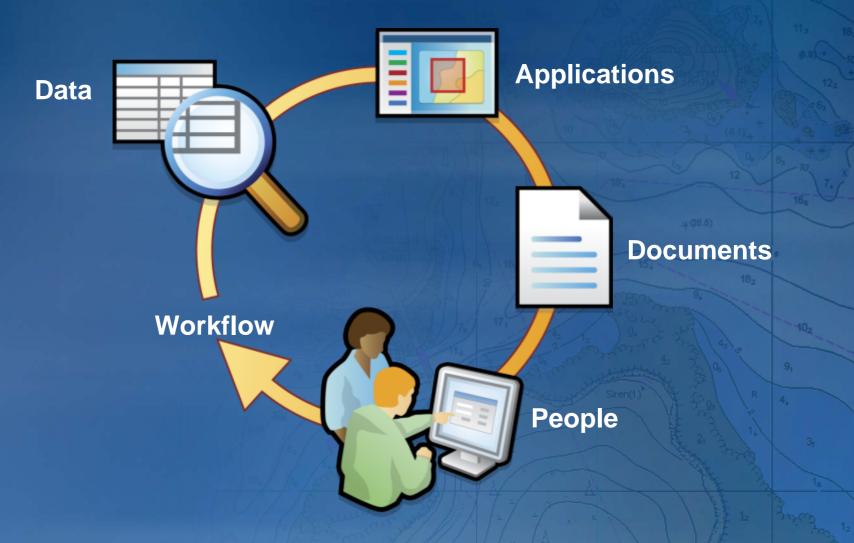
Quality Control Benefits

- **Common environment**
  - ArcMap

- **Validation exists throughout the entire workflow**
  - Creating new features
  - Modifying existing features
  - Central database and product database

- **All errors stored in the ReViewer table for multi-user access**

- **Tracks who and when the edit was made**

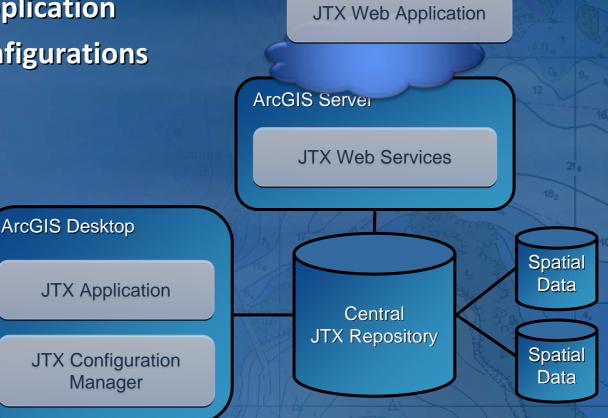# ArcGIS Nautical Solution technology provides an Operational Advantage

Centralized Data

Nautical Products & tools

Quality Control

Workflow

Workflow Management Technology

Data · **Applications** · **Documents** · **People** · **Workflow**

Workflow Management Technology

- **Job Tracking Extension (JTX)**
- **Stand alone application**
- **User/roles/configurations**
- **Job Types**
- **Reporting**
- **JTX Web**

JTX Web Application

ArcGIS Server

JTX Web Services

ArcGIS Desktop

JTX Application

JTX Configuration Manager

Central JTX Repository

Spatial Data

Spatial Data

Workflow Management Benefits

- Manage units of work as jobs
- Streamlined workflows
- Standardized workflows
- User productivity improved by automated tasks
- Work progress and information easily retrieved
- Highly configurable

ESRI Maritime Team
GIS for a Blue Planet

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