Strategies for Clinical Decision Support for Electronic Case Reporting
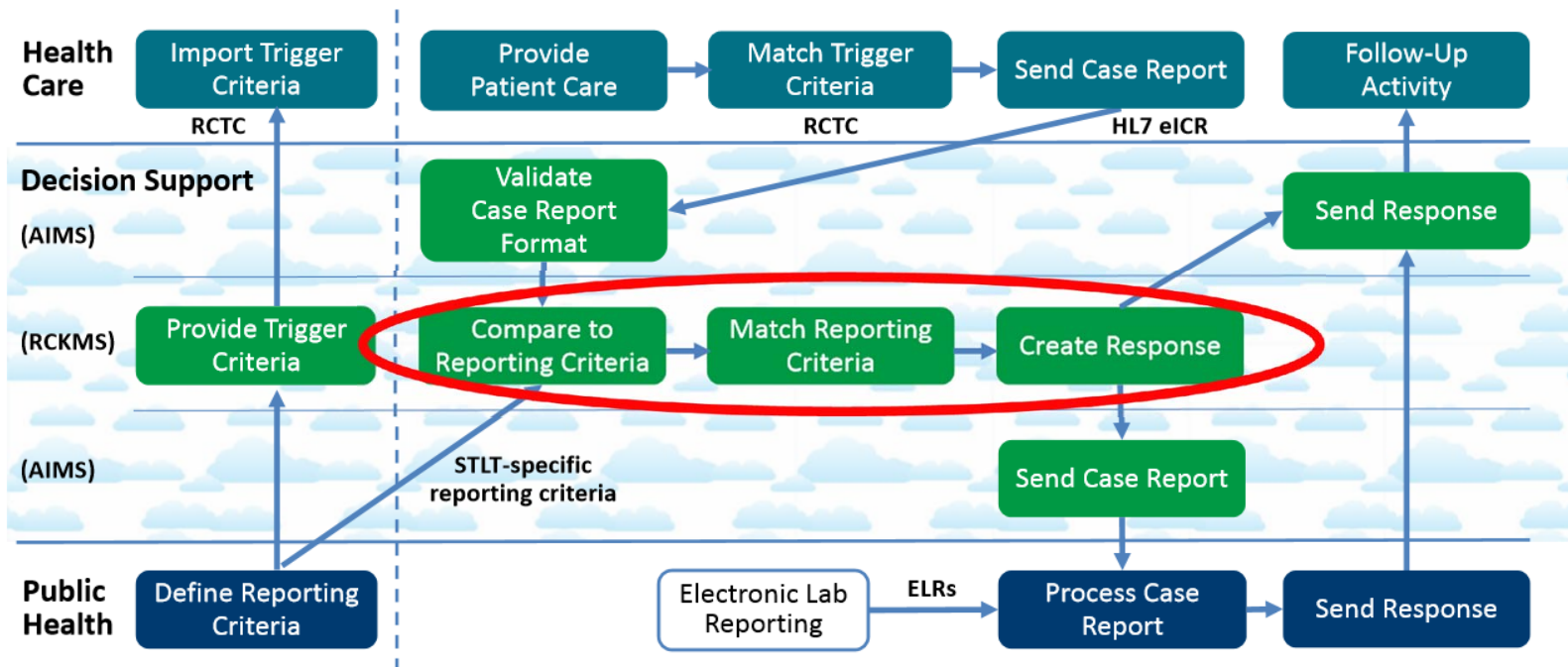
Noam H. Arzt, PhD, FHIMSS, FAMIA
ISDS 2019 Annual Conference
San Diego, CA
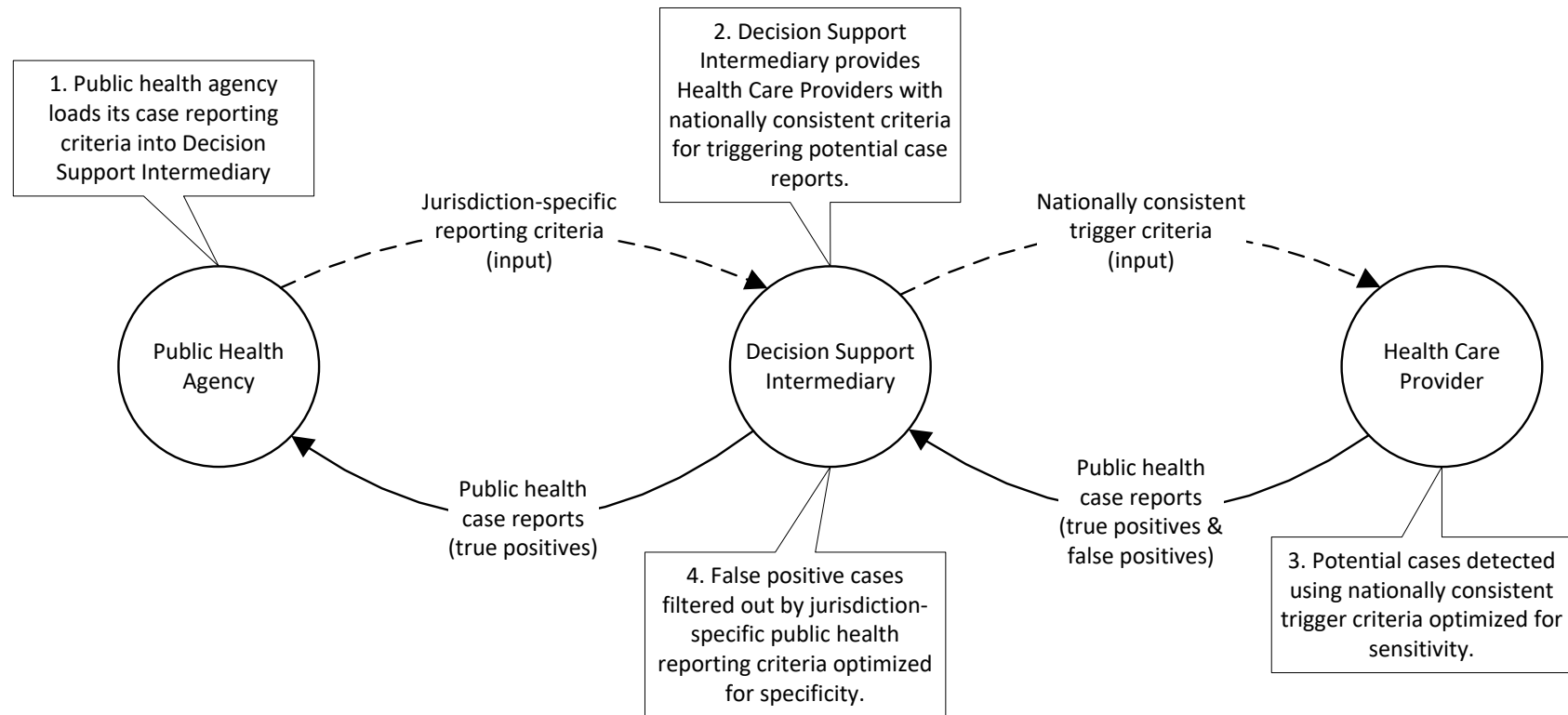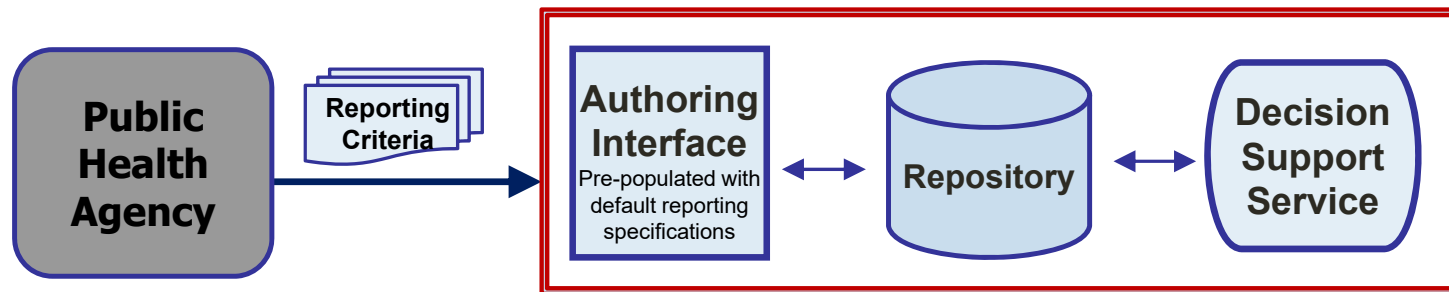*January 30, 2019*

Electronic Case Reporting Process Flow

Source: http://www.digitalbridge.us/db/wp-content/uploads/2017/03/DigitalBridge_eCR_MidLevelDiagram_20170213.pdf

Electronic Case Reporting (eCR) Overview

1. Public health agency loads its case reporting criteria into Decision Support Intermediary

2. Decision Support Intermediary provides Health Care Providers with nationally consistent criteria for triggering potential case reports.

Jurisdiction-specific reporting criteria (input)

Nationally consistent trigger criteria (input)

Public Health Agency

Decision Support Intermediary

Health Care Provider

Public health case reports (true positives)

Public health case reports (true positives & false positives)

4. False positive cases filtered out by jurisdiction-specific public health reporting criteria optimized for specificity.

3. Potential cases detected using nationally consistent trigger criteria optimized for sensitivity.

Source: Digital Bridge Project

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# Reportable Conditions Knowledge Management System (RCKMS) Components

1. **Authoring Interface:** Jurisdiction enters Reporting Specifications into Tool
   - RCKMS tool comes pre-populated with *default Reporting Specifications* that PHAs can choose to use as is, or customize to meet their needs
2. **Repository**: Reporting Specifications and Criteria stored in a Repository
3. **Decision Support Service (DSS)**: Reporting Specifications deployed to DSS (Rules Engine)

RCKMS: Centralized Approach
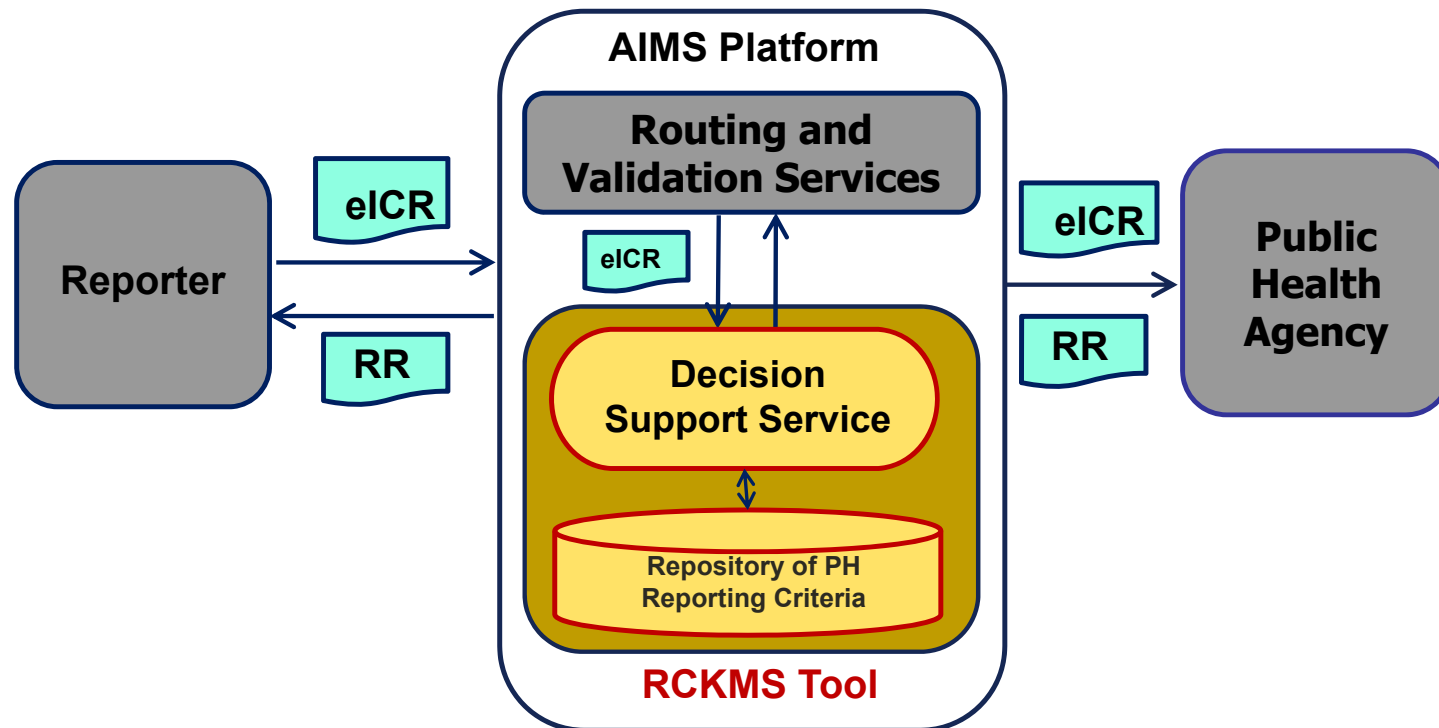
Benefits of a Centralized Approach

- Ensure a standards-based approach
  - HL7 Electronic Initial Case Report (eICR)
  - HL7 Reportability Respose
- Scalabe
  - Centralized AIMS platform
  - Established trust framework
- Shared set of rules for all jurisdictions
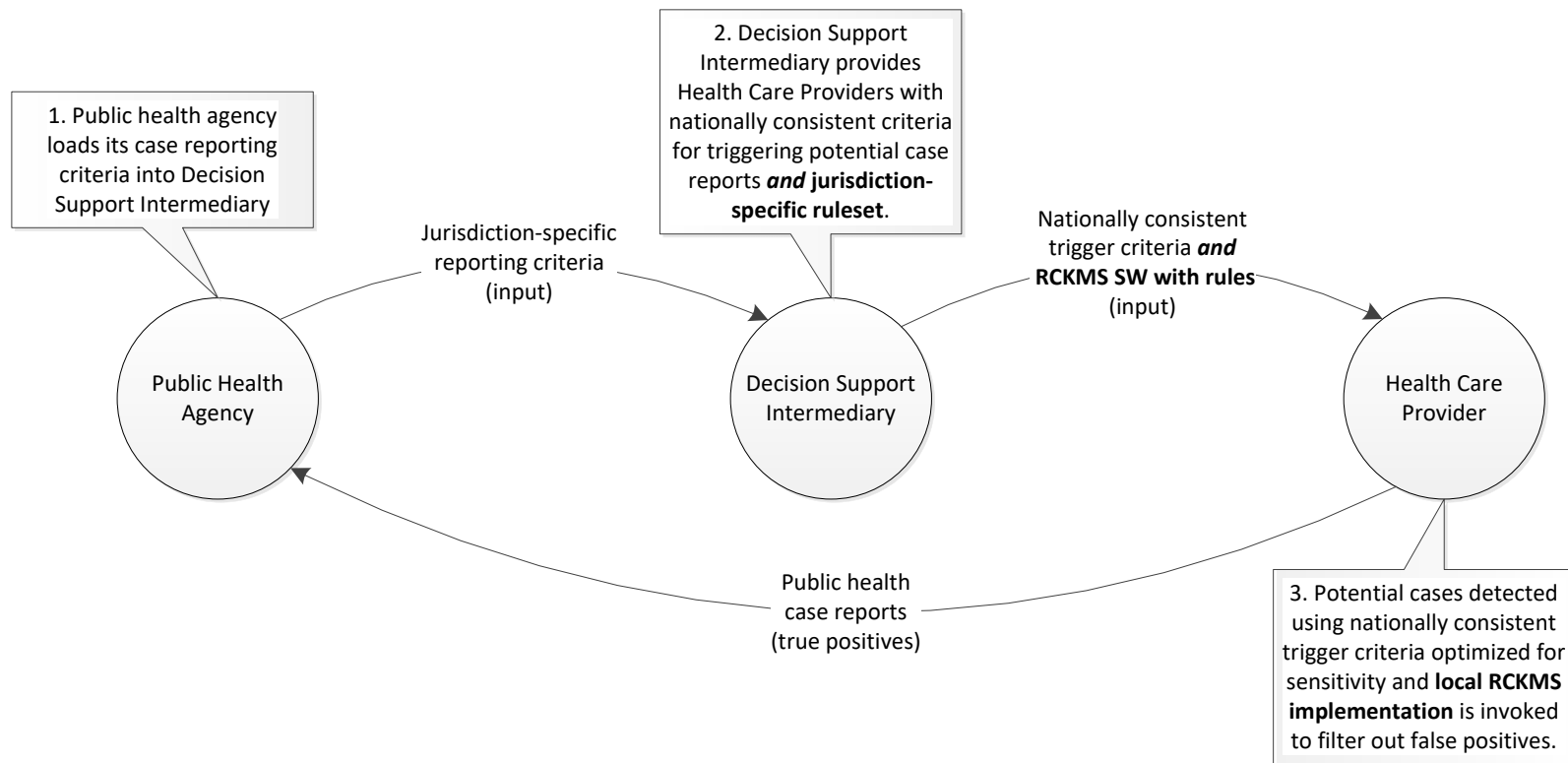- Collaborative Effort through Digital Bridge

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Alternative Deployment Models

- Reduce dependence on a central service
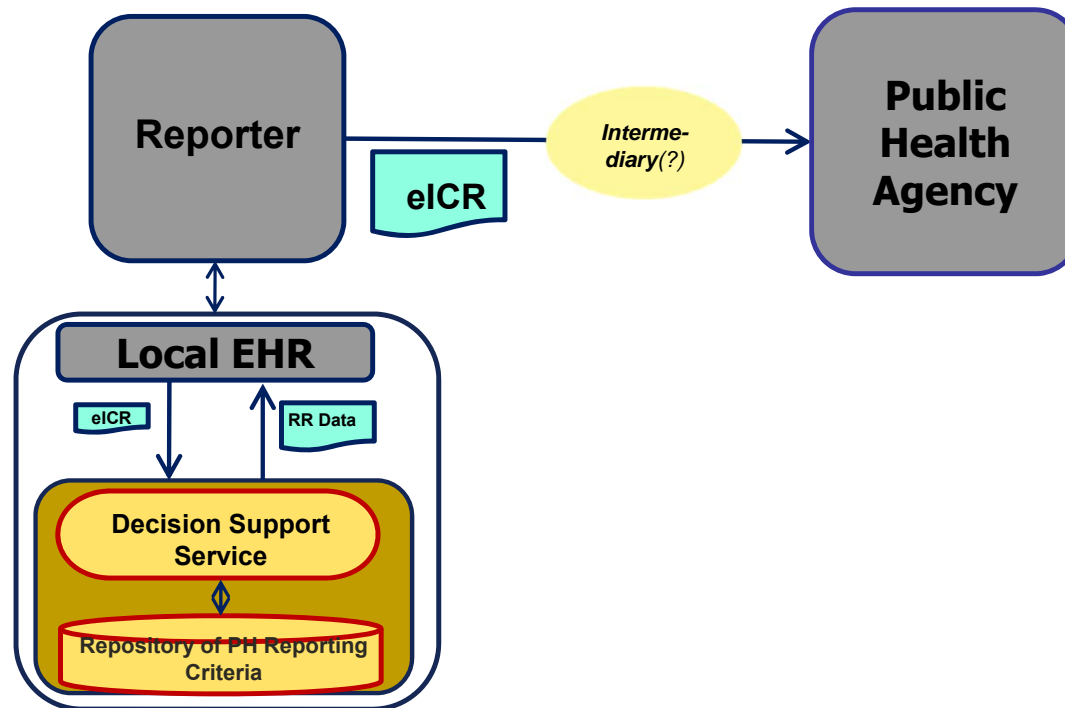 - Performance
  - Reliability
  - Network latency
  - Leverage existing local CDS capabilities
  - Legal reasons
- Dangers
  - Inconsistent rules
  - Insufficient rules
  - Higher cost
  - May require more technical skill
  - Other technical, policy, legal impacts
- Two models
  - Local RCKMS deployment
  - Deployment of national rule set using local CDS software capabilities

Alternative #1: Local RCKMS Deployment

1. Public health agency loads its case reporting criteria into Decision Support Intermediary

2. Decision Support Intermediary provides Health Care Providers with nationally consistent criteria for triggering potential case reports **and jurisdiction-specific ruleset**.

Jurisdiction-specific reporting criteria (input)

Nationally consistent trigger criteria **and RCKMS SW with rules** (input)

Public Health Agency

Decision Support Intermediary

Health Care Provider

Public health case reports (true positives)

3. Potential cases detected using nationally consistent trigger criteria optimized for sensitivity and **local RCKMS implementation** is invoked to filter out false positives.

Alternative #1: Local RCKMS Deployment

Alternative #2: Local CDS Deployment

1. Public health agency loads its case reporting criteria into Decision Support Intermediary

2. Decision Support Intermediary provides Health Care Providers with nationally consistent criteria for triggering potential case reports *and* jurisdiction-specific ruleset.

Jurisdiction-specific reporting criteria (input)

Nationally consistent trigger criteria *and* **rules** (input)

Public Health Agency

Decision Support Intermediary

Health Care Provider

Public health case reports (true positives)

3. Potential cases detected using nationally consistent trigger criteria optimized for sensitivity and local EHR CDS is invoked to filter out false positives.

Alternative #2: Local CDS Deployment

Deployment Timeline

Centralized RCKMS
Deployment
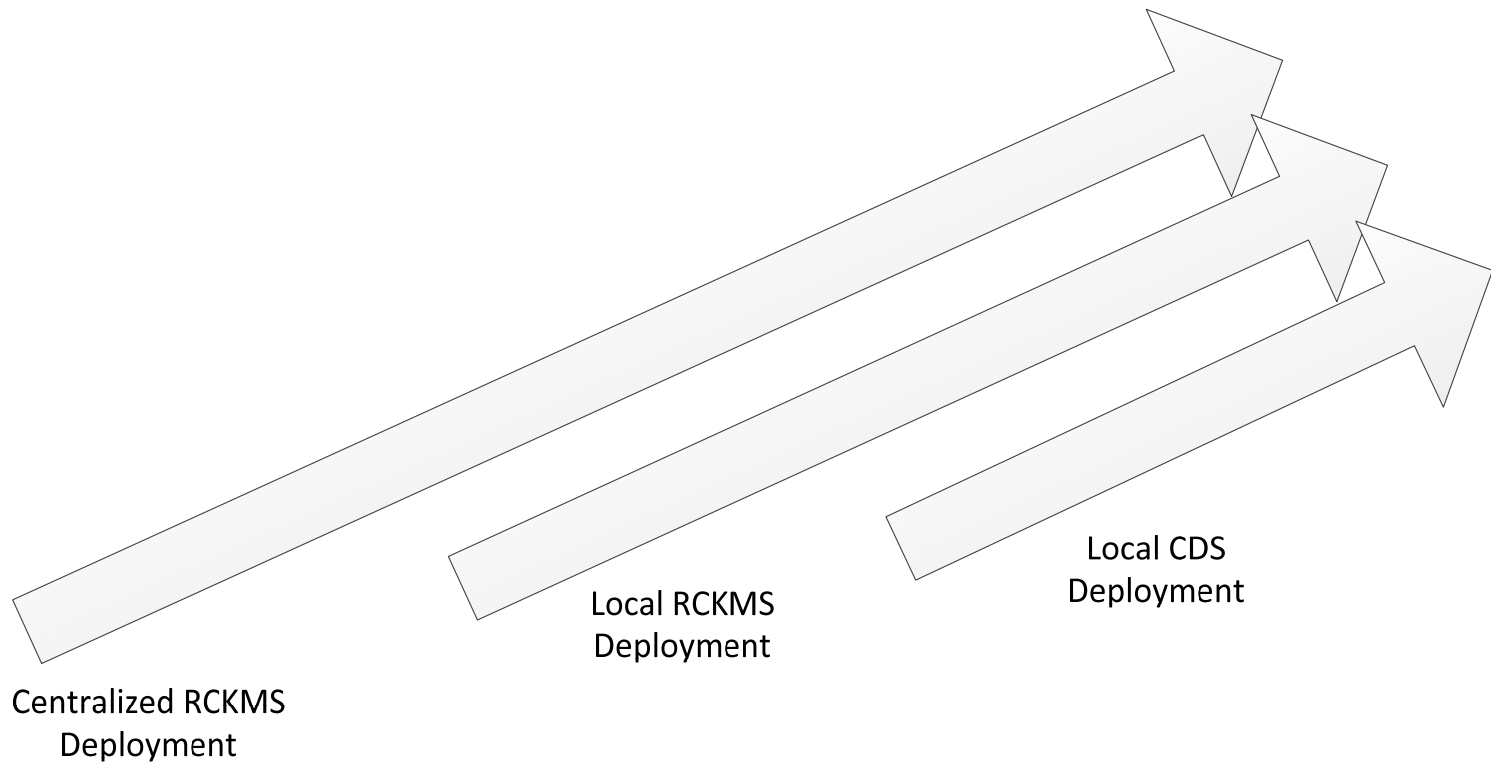
Local RCKMS
Deployment

Local CDS
Deployment

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