



# Child Health Advanced Records Management



## The Utah Approach to Integration

PHIN National Conference  
May 26, 2004



# Why Would This Interest You

- Strategic Thinkers
- Pragmatists
- Techies
- Public Health Converts
- Do Good-ers
- Integrationists



# Main Topics

- The Context
- The Essence of CHARM
- CHARM Architecture and Features
- The Utah Approach to Integration
- Challenges & Strategies



# Context

- Connections – a Community of Practice
- Integrated Child Health Information Systems (ICHIS)
- Patient Safety Initiative
- Electronic Health Records
- Data Standards



# The Essence of CHARM - What

To create an electronic health profile for every child in Utah and make it available for real-time access by appropriate health care programs and partners

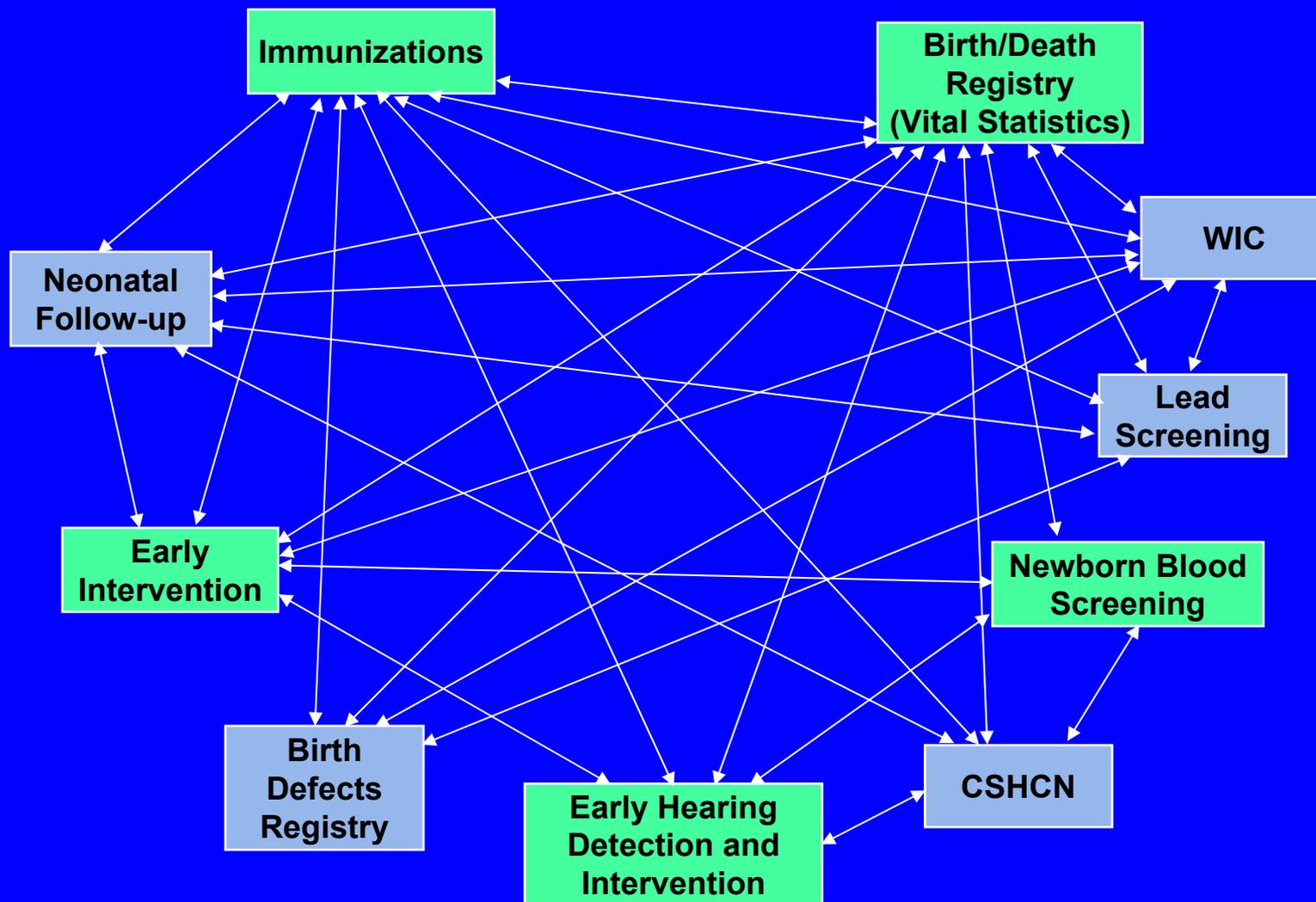


# The Essence of CHARM - Why

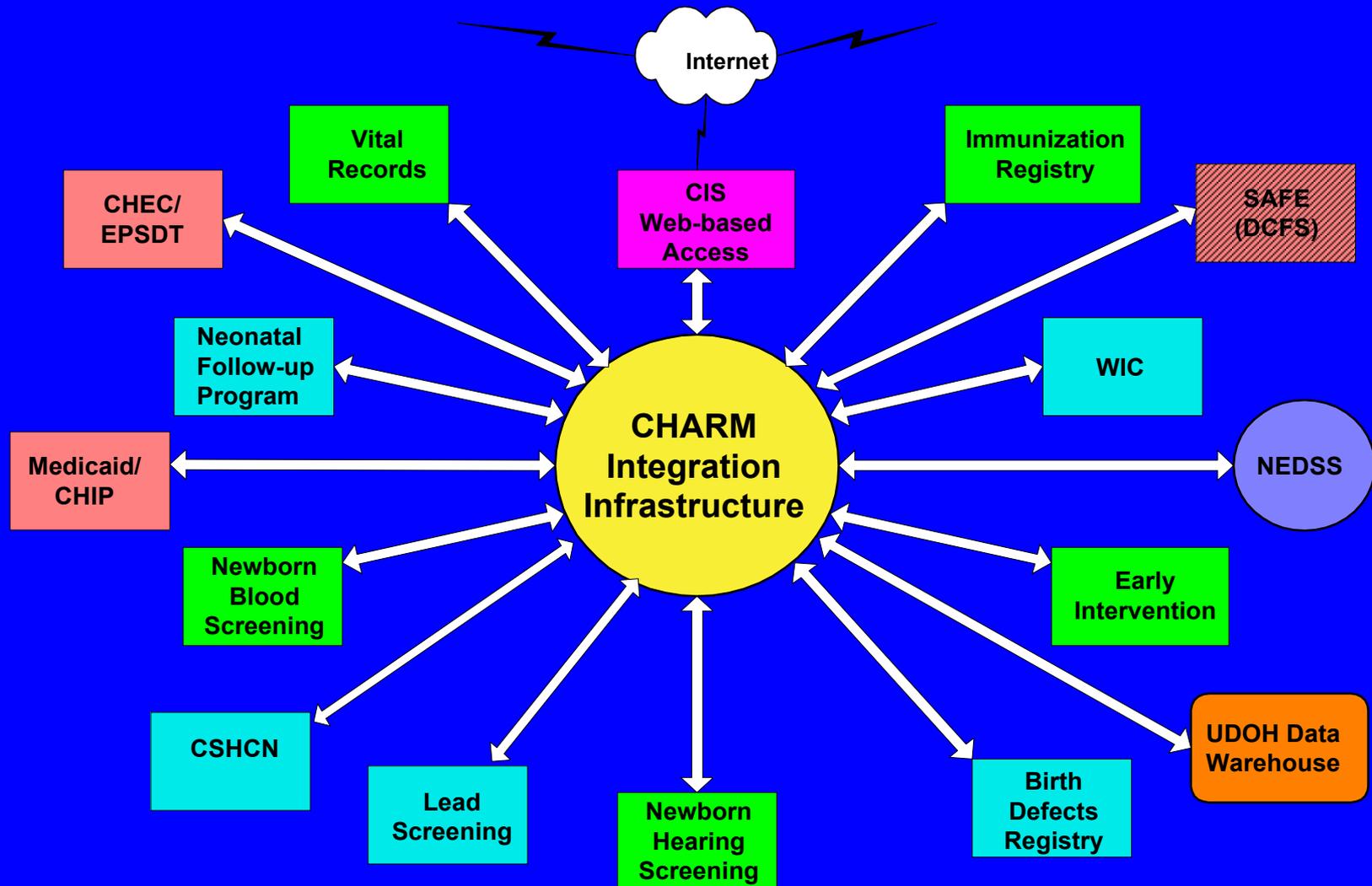
- Ensure the timely sharing of critical data
- Provide access to information that is not otherwise available
- Avoid missed opportunities
- Enable coordinated service delivery
- Reduce duplicate data entry



# Data Sharing Possibilities



# Data Sharing in the CHARM Environment



# The Essence of CHARM - How

CHARM does NOT replace existing UDOH databases!

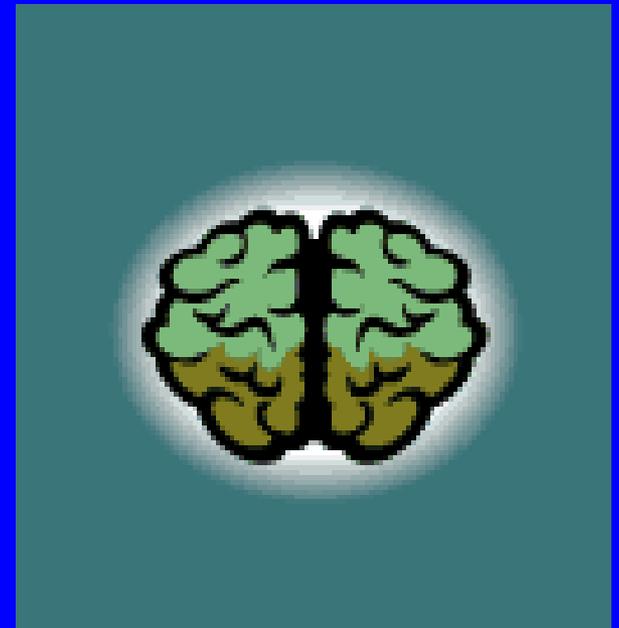
The participating programs will be fitted with their own front-end "agent" to PLUG in to the CHARM infrastructure



# The Essence of CHARM - How

CHARM does NOT replace existing UDOH databases!

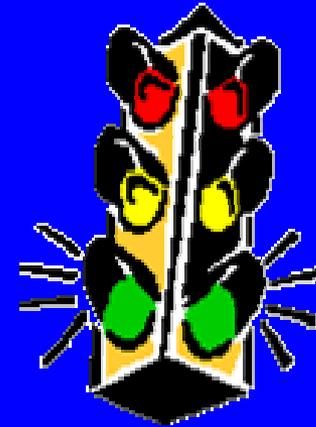
CHARM is the “BRAIN” of the integrated data system



# The Essence of CHARM - How

CHARM does NOT replace existing UDOH databases!

CHARM acts as an electronic broker, dispatcher, TRAFFIC COP, conflict manager, integration policy enforcer



# Salient CHARM Features

- Virtual Child Health Profile
- Minimum Core Data
- Transparent Identifier
- Chameleonic Look-n-Feel
- Asynchronous Request Processing
- Customizable Agents (Adapters)
- Services
- Alerts



# CHARM Architecture Goals

- Provide seamless real-time access to current and authoritative information
- Alert users of exceptional conditions
- Identify and merge duplicate data
- Allow participating programs to retain stewardship over their data and define what data will be shared and with whom
- Allow new participating programs to easily "plug-in" into CHARM

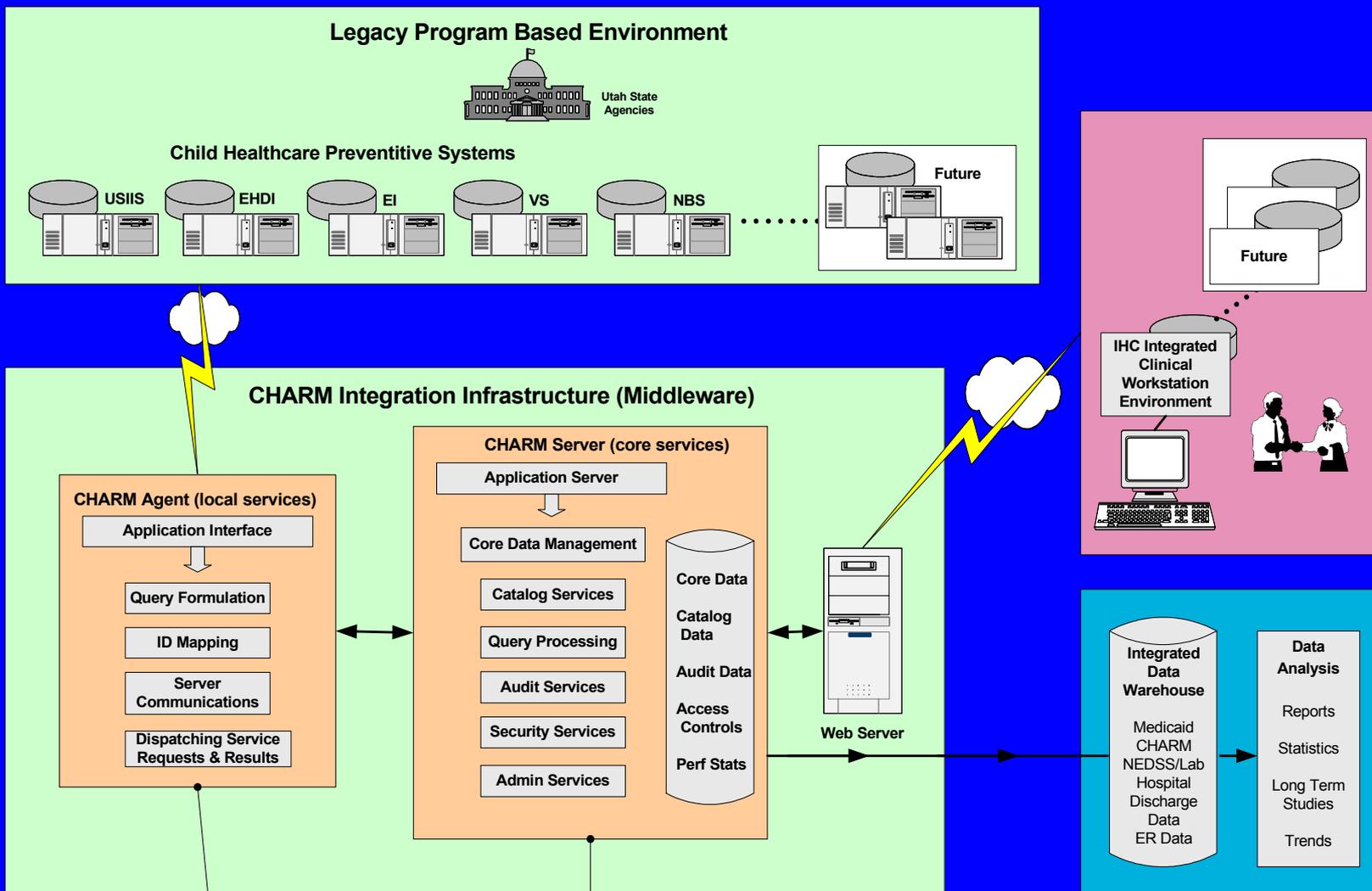


# CHARM Architecture Goals

- Allow independent evolution of the participating programs' information systems
- Allow CHARM to grow in size & scope
- Ensure that program and department security policies are enforced
- Ensure confidentiality of client data
- Satisfy HIPAA requirements



# CHARM Conceptual Architecture



Replicated and configured for each program based system.

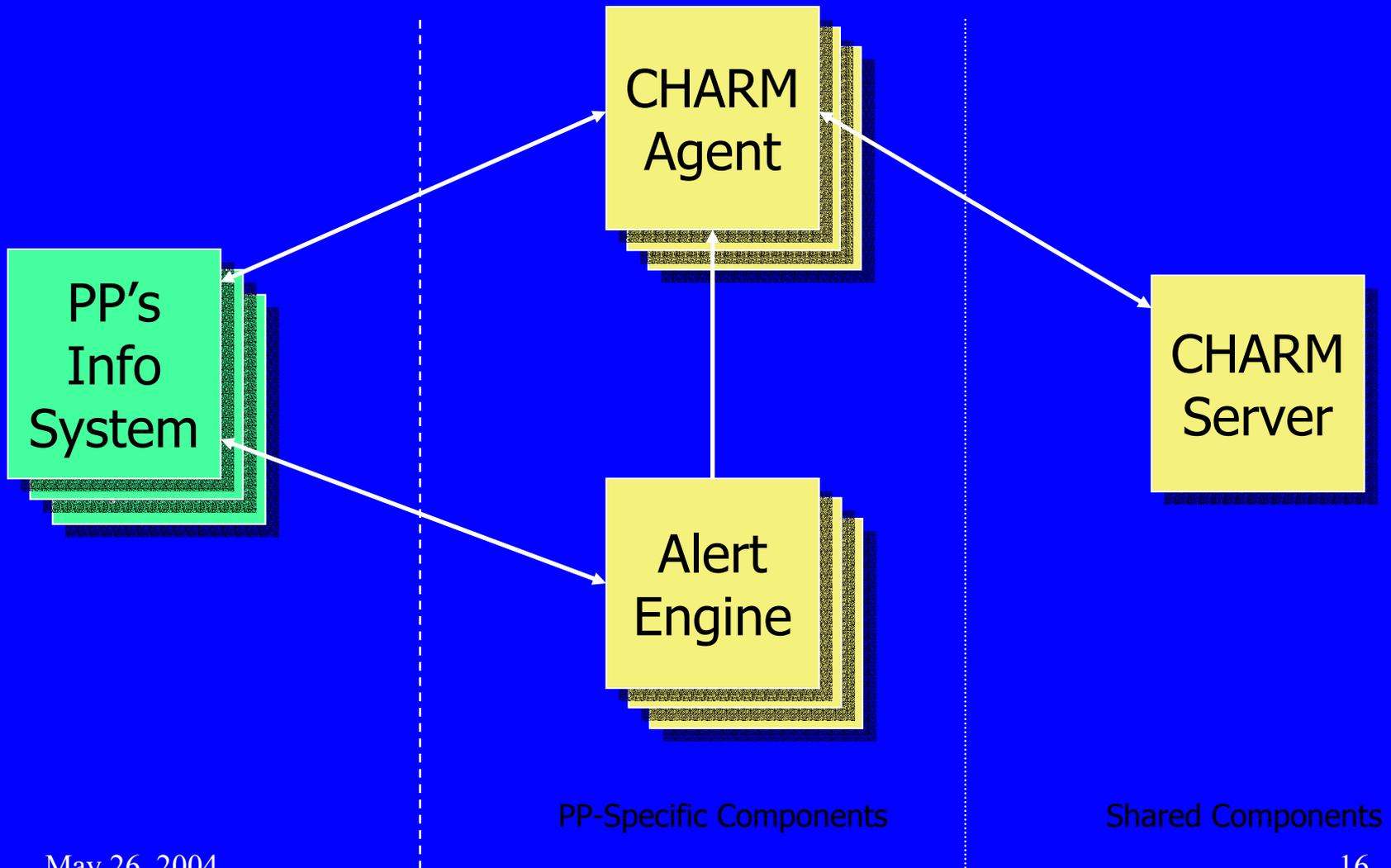
Deployed as a central server initially, but individual components may be distributed/replicated for increased performance.

- Child Healthcare Oriented Client Services
- Private Healthcare Delivery Services
- Public Health Analytic Services
- Data Push

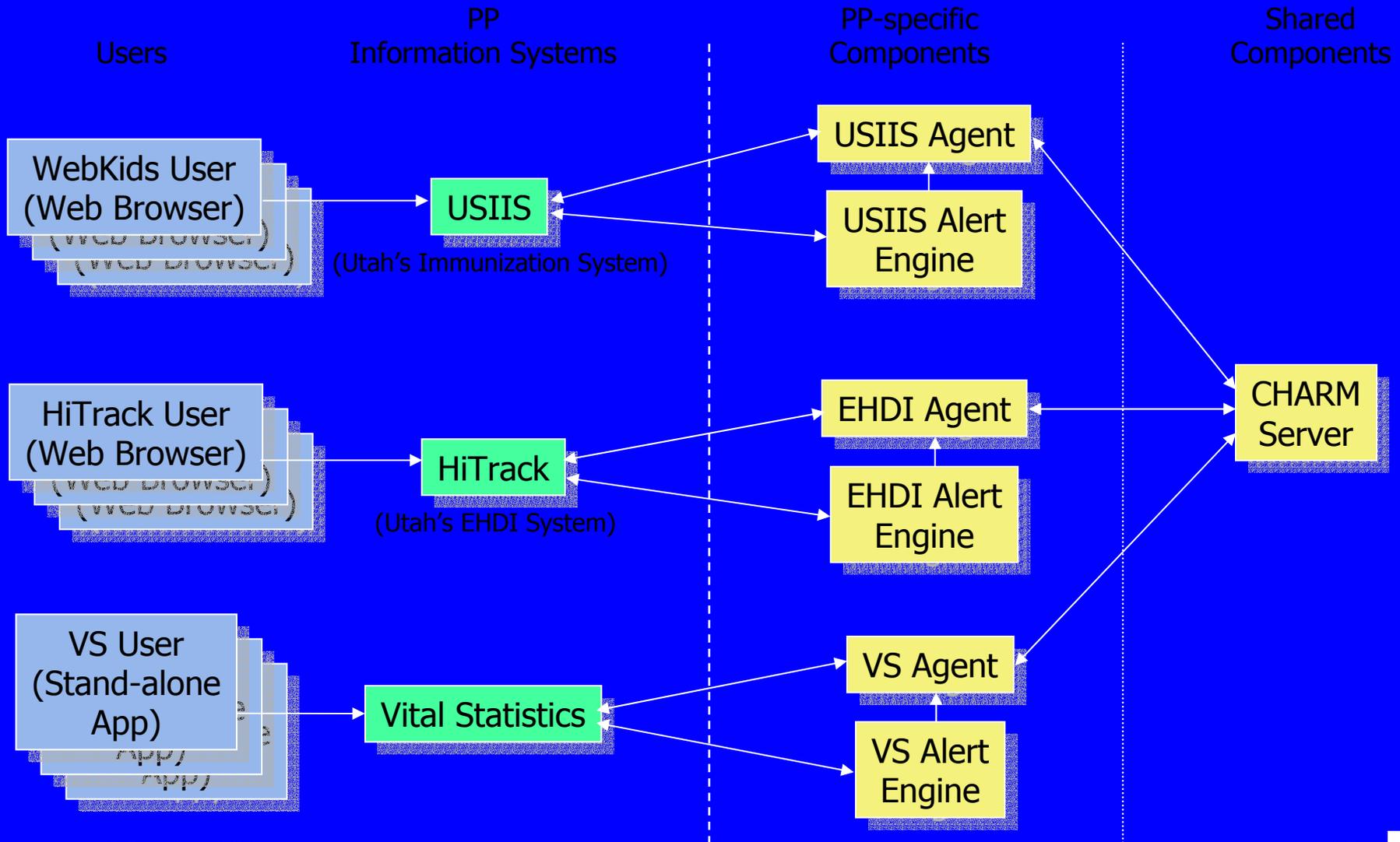


# CHARM Architecture

## Main Components



# CHARM Configuration for Three Participating Programs



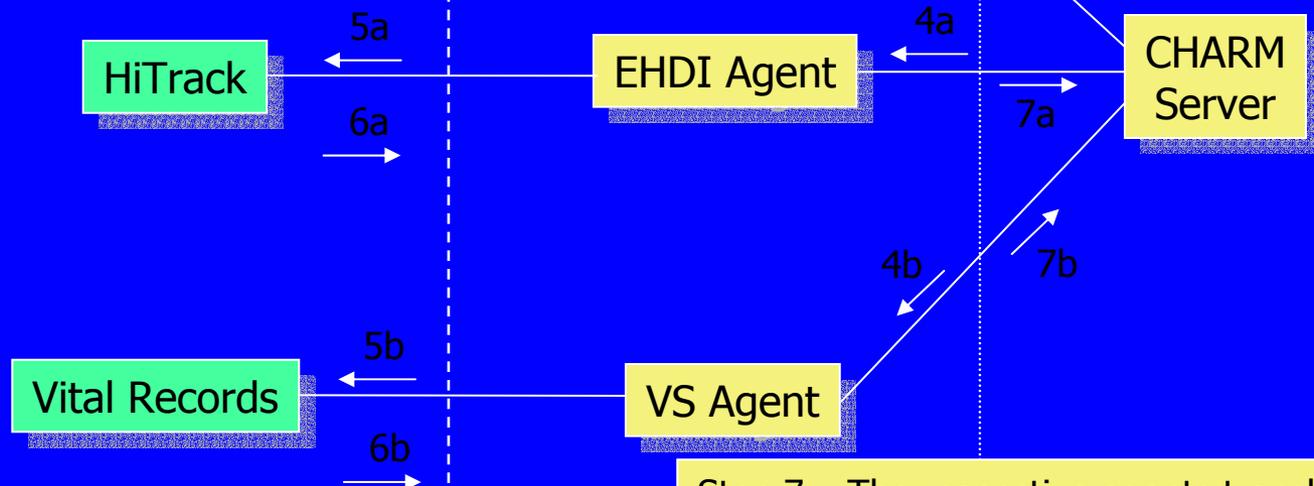
# Sample Query Scenario

Step 1 - Step 10 – The USIIS displays the results to the user  
 Step 2 – The USIIS Agent translates any CHARM IDs and returns the results to USIIS  
 Step 3 – The USIIS Agent combines the results and translates the query into a query onto The CHARM Server

WebKids User  
(Web Browser)

Step 4 – The EHCI Agent receives a service request, translates the CHARM ID to a HiTrack ID, executes the necessary service in the HiTrack system. Similar events occur in VS Agent in parallel

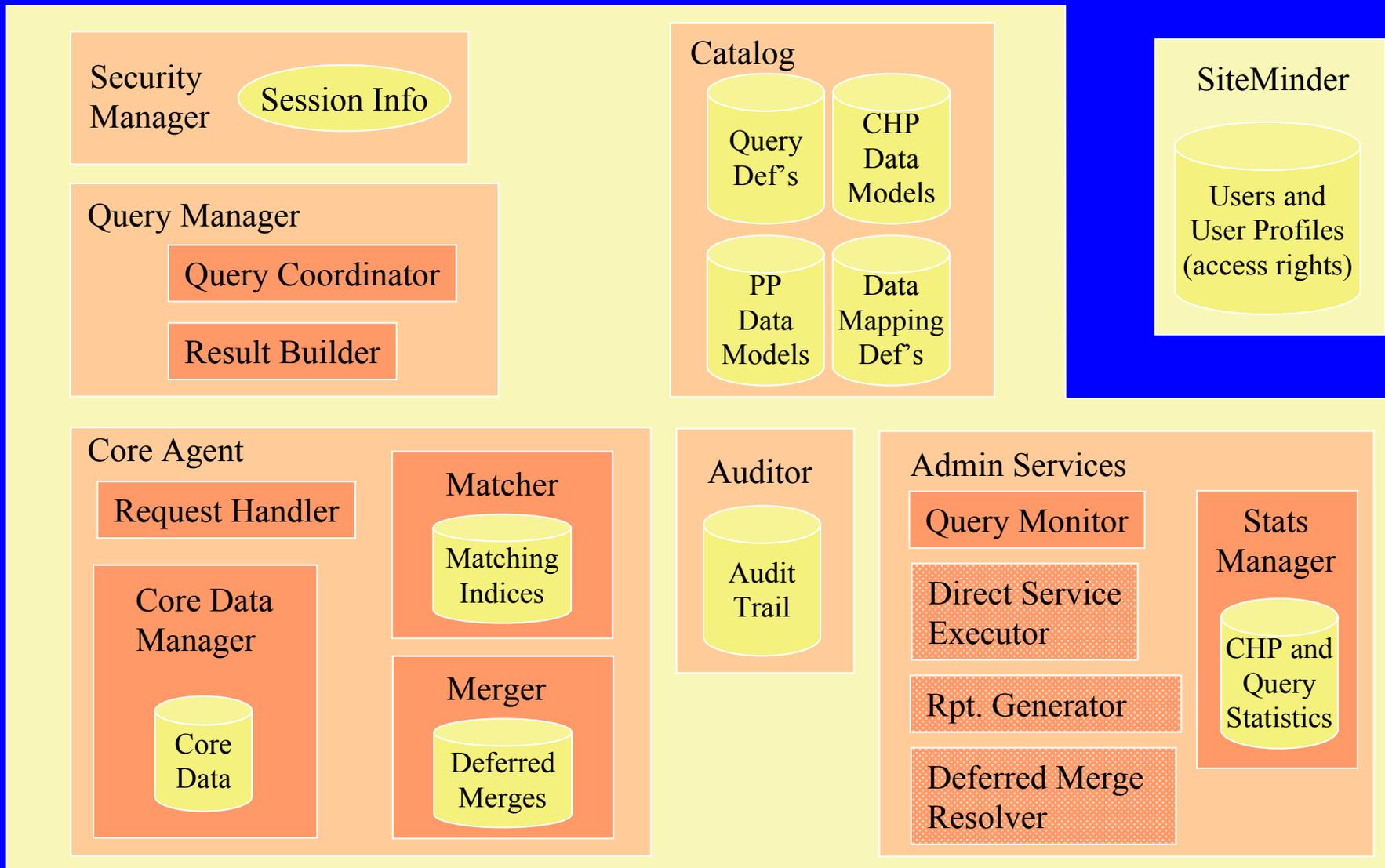
Step 5 – The HiTrack system returns the request Hearing Screening History data. Similarly, Vital Records returns the requested Risk Factor data.



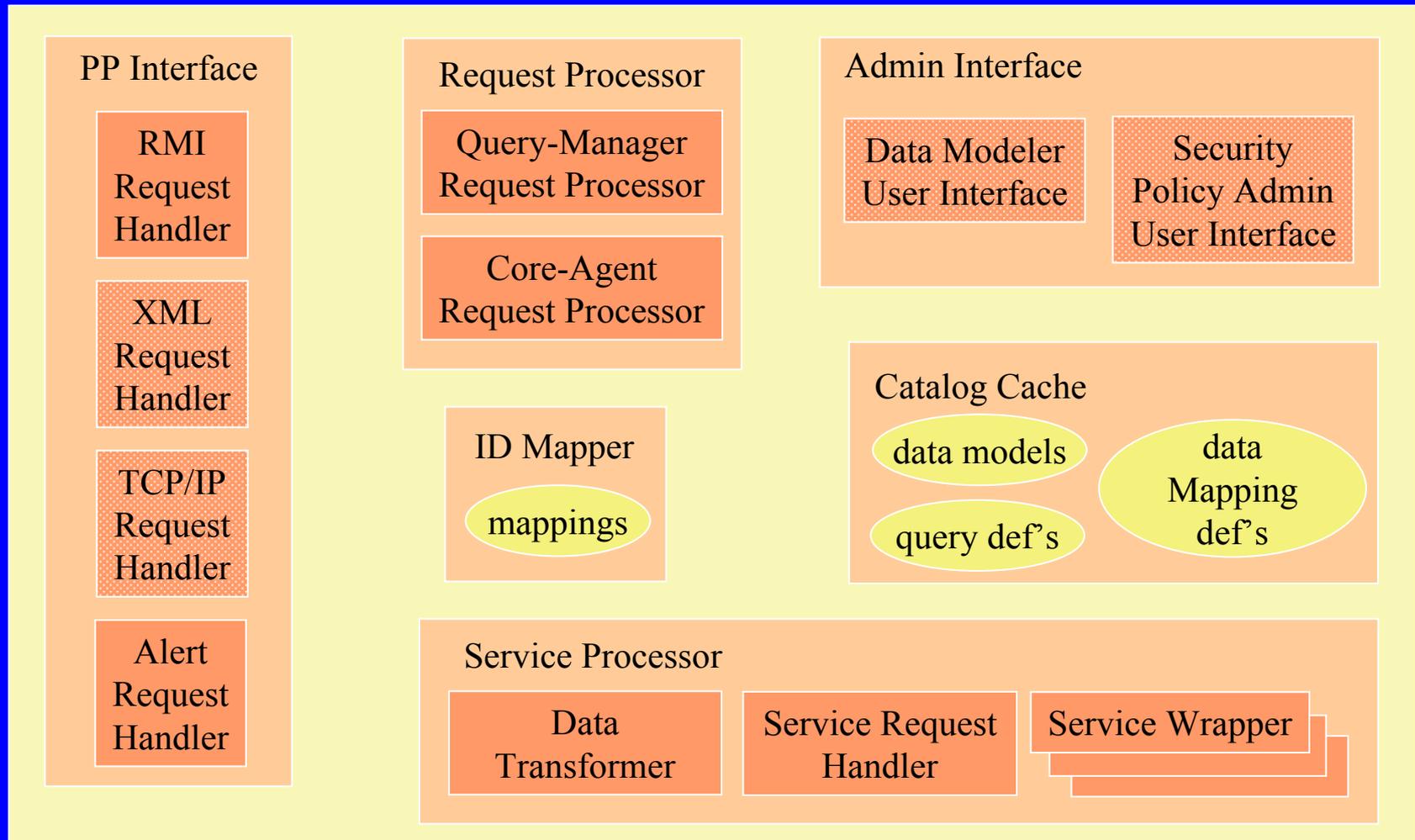
Step 7 – The respective agents translate program-specific ID to CHARM IDs and return the results to the CHARM Server



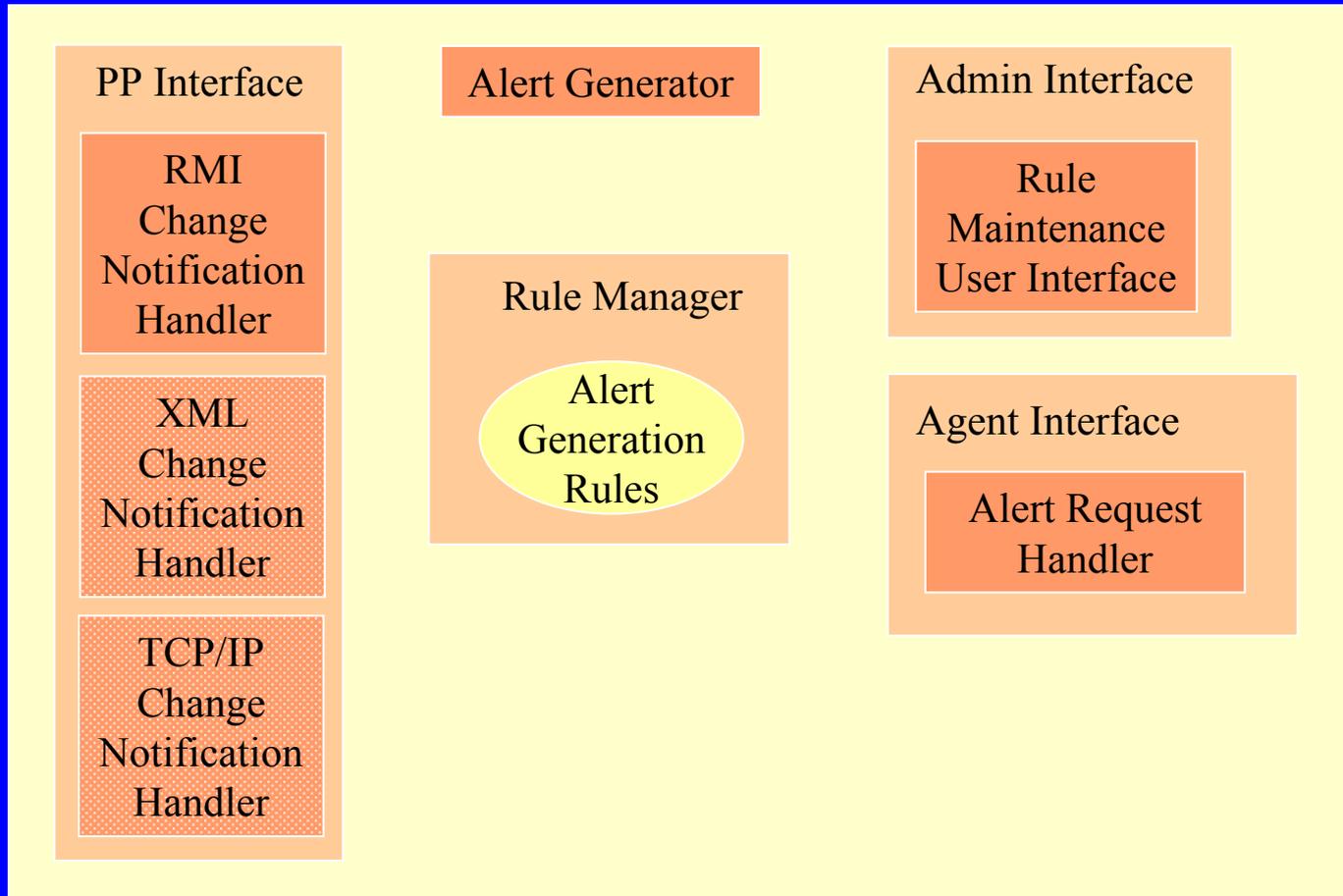
# CHARM Server



# CHARM Agent



# CHARM Alert Engine



# The Approach



# Leadership Approach

**The Challenge:** To find the right balance of executive leadership and programmatic voice/ownership

## **The Approach:**

- Governance structure
- Grant management team
- Partnership with Utah State University CSGP
- Programmatic management of the project threads
- Establishing CHARM as a program



# Positioning Approach

**The Challenge:** To overcome initial resistance and make it easy to participate and adopt

## **The Approach:**

- Live-and-let-live philosophy
- Friendly persuasion vs. mandates or dictates
- Non-onerous and transparent
- Affordable and sustainable
- Plug-and-play participation



# Strategic Approach

**The Challenge:** To develop a reasonable sequence for the programs to “come in to the fold”

## **The Approach:**

- Develop criteria for PP inclusion
- Develop a CHARM Implementation Strategy
- Stage the implementation of the CHARM II based on feature-payoff, software dependencies, and risks



# Implementation Strategy

Release 1	Initial Program Integration (IZ, NHS, and VS)	Mar. 2004
Release 2	Web Access and Additional Program Integration (EI and NBS)	Sep. 2004
Release 3	Content Enhancement	Dec. 2004
Release 4	Additional Program Integration (WIC, BDR and CSHCN)	Mar. 2005
Release 5	Additional Program Integration (CHIP, Medicaid and SAFE)	
Release 6	Extended Integration (SERPH)	
Release 7	Export to DOH Data Warehouse	



# Architectural Approach

**The Challenge:** To develop a scalable, flexible and affordable architecture which allows the PPs to retain stewardship over their data

## **The Approach:**

- Data is exchanged, NOT replicated
- Data is “morphed” (standardized) at the border
- Scalable and customizable for “plug-n-play”
- Data Catalog allows for program/system evolution
- Configurable on existing resources (component collocation is not required)
- Complexity at center - simplicity at periphery



# Content Development Approach

**The Challenge:** To identify data that is useful and that can be shared with safety, confidentiality and proper permissions

## **The Approach:**

- Meetings with stakeholders
- Focus groups (users, parents, etc.)
- JAD sessions
- Data sharing agreements
- Legal reviews



# Technical Approach

**The Challenge:** To overcome the challenges of a complex architecture and of a new development environment

## **The Approach:**

- Iterative and incremental development
- Prototyping
- Use of Design Patterns
- Use good open source SW components
- Maximize tools within the JDE
- Minimize custom developed code
- Use of COTS



# Tactical Approach

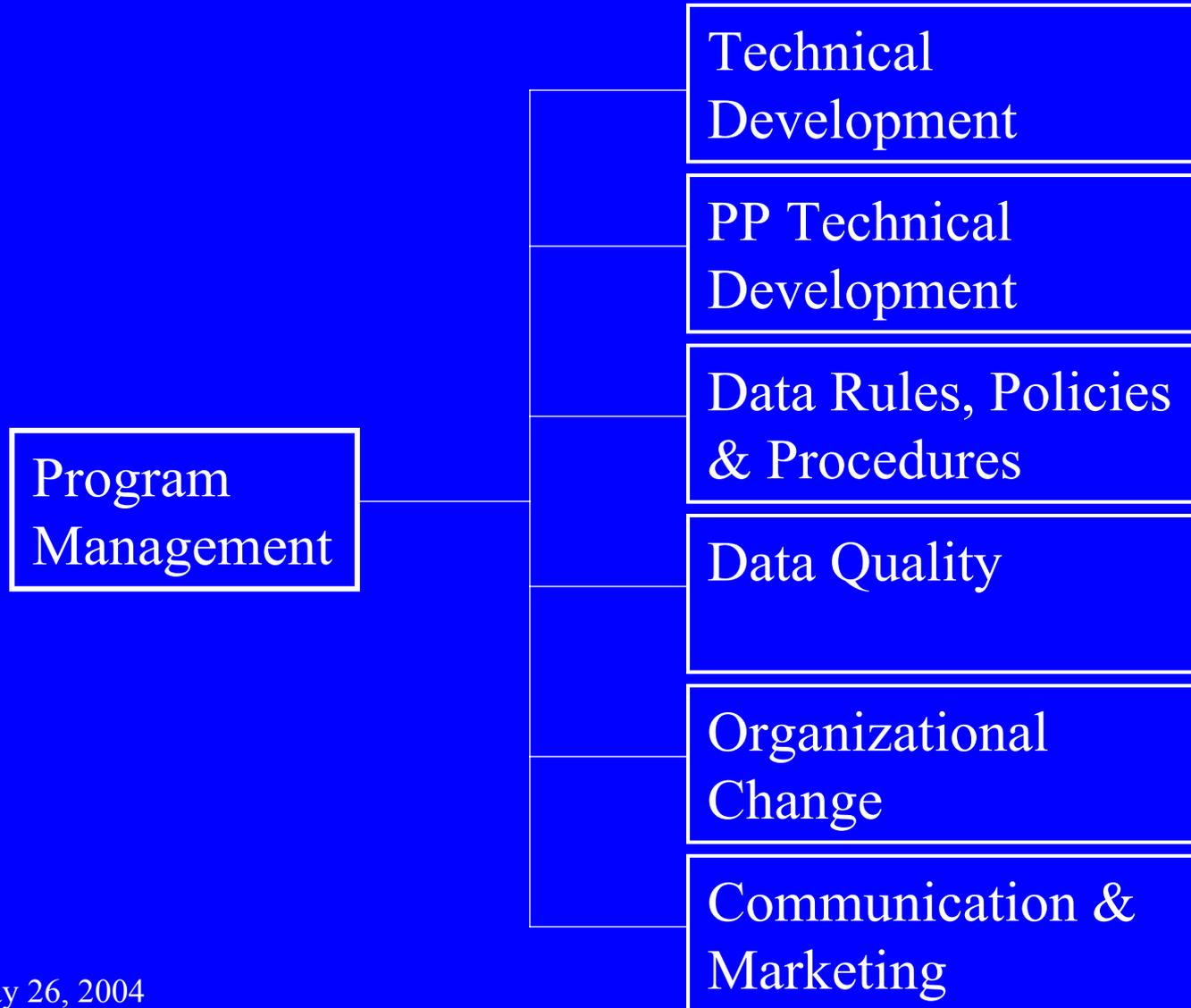
**The Challenge:** To manage the complexity of a business transformation project “disguised” as an IT project

## **The Approach:**

- Divide and conquer – identify and manage the **parallel threads**
- Manage it as a Program – give it status and **visibility**



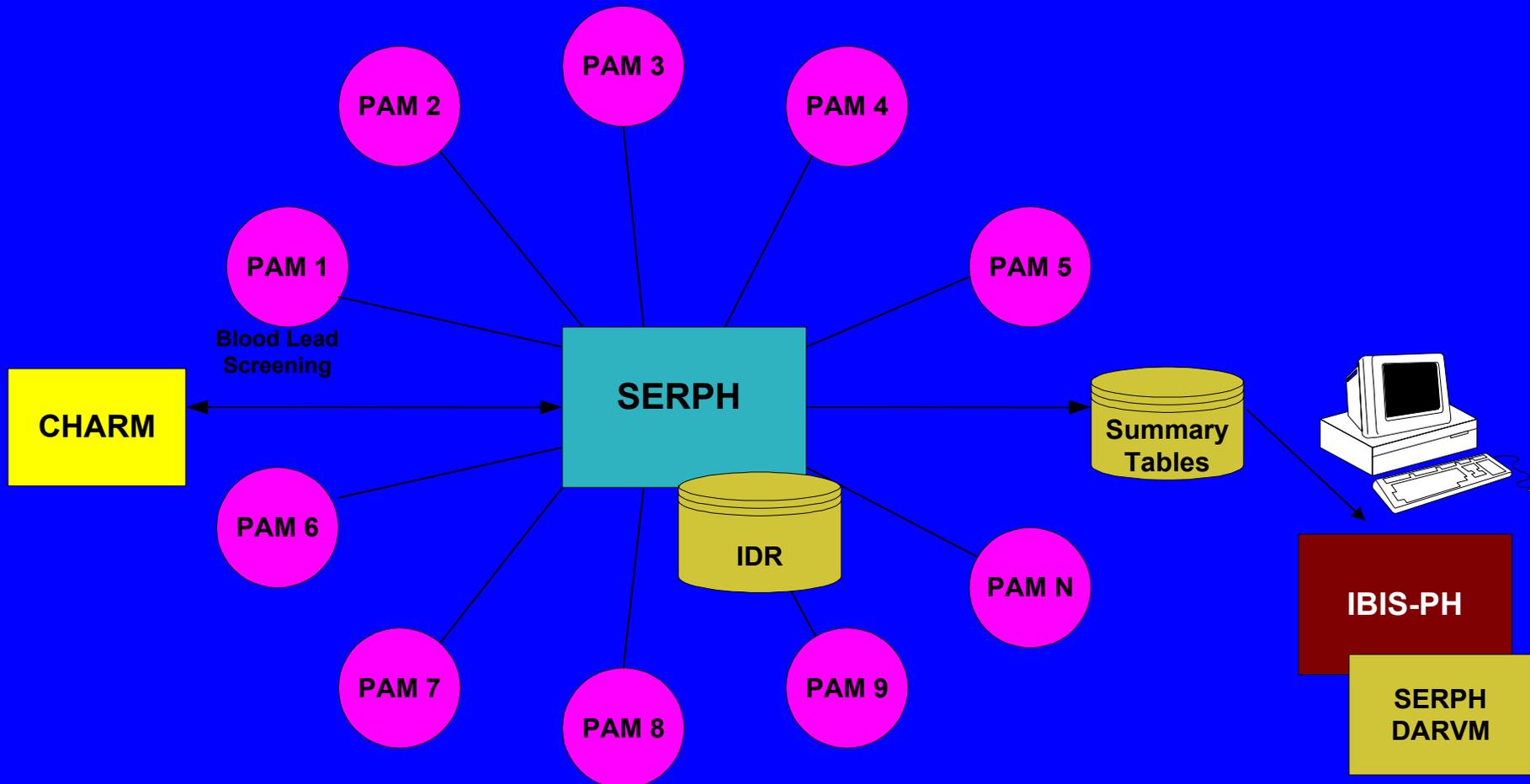
# Managing Complexity



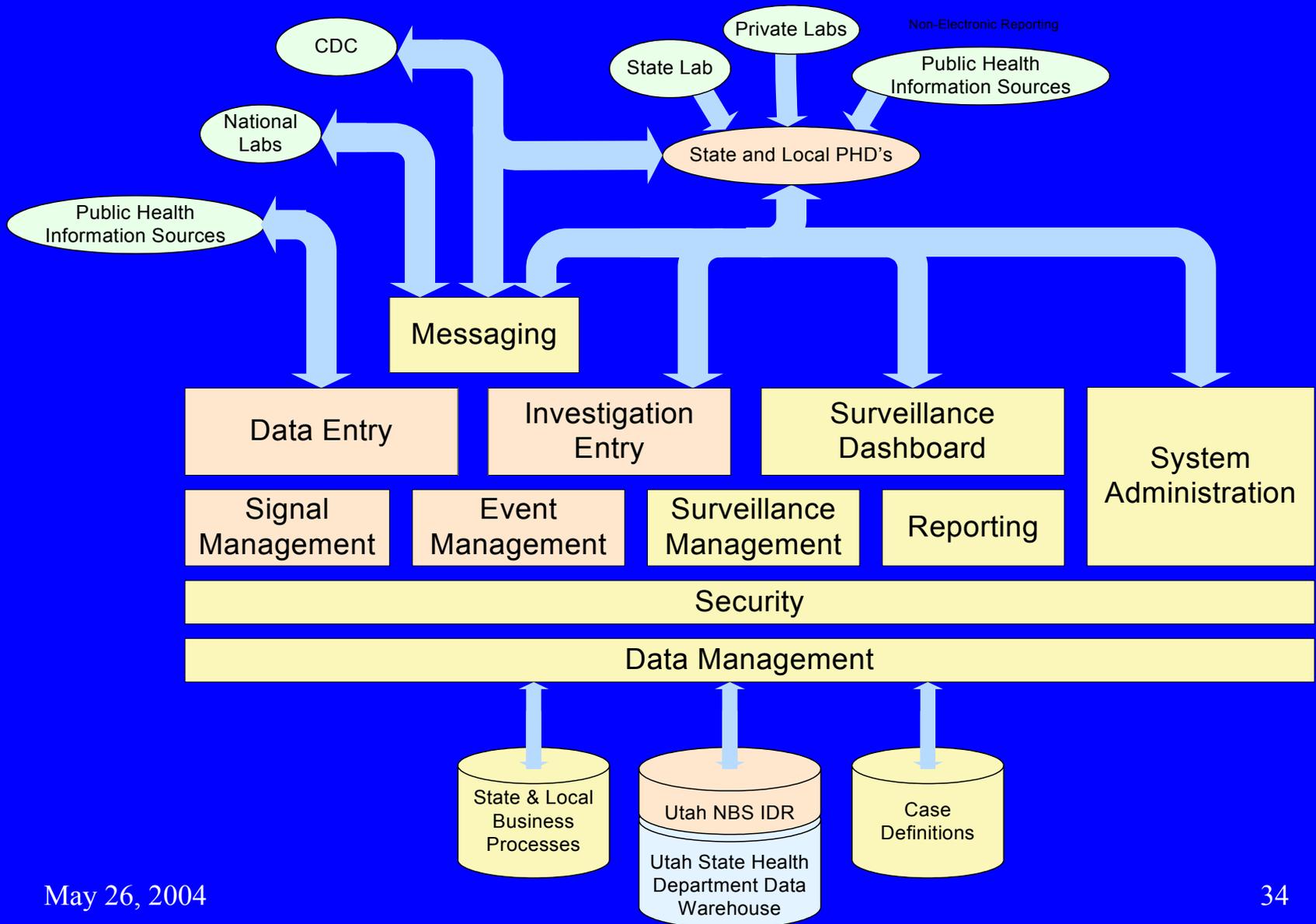
# CHARM & SERPH



# SERPH Approach to Integration



# SERPH Conceptual Architecture

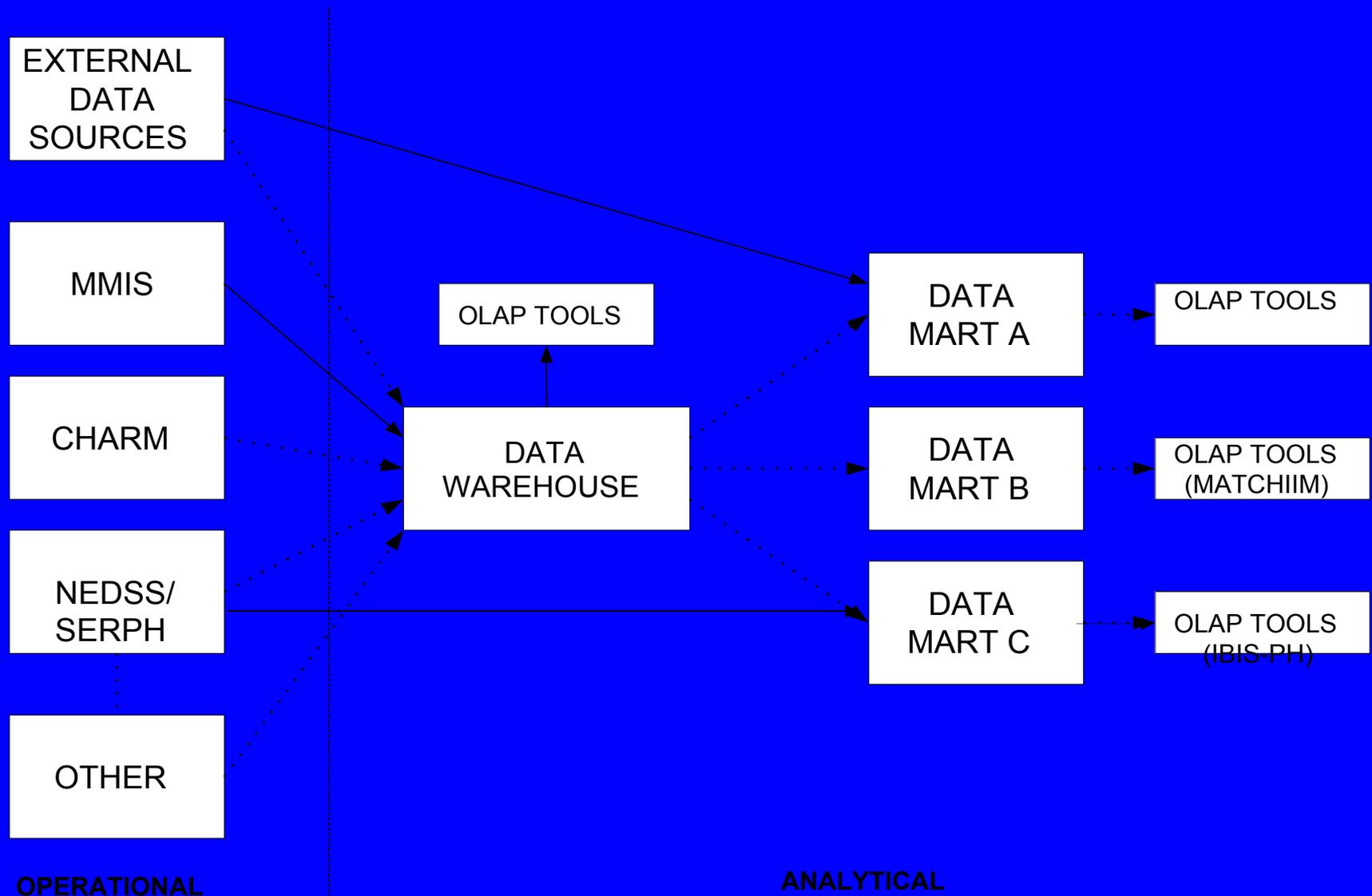


# Living Together and Living Apart

- The “battle” for satellites
  - gravitational pull vs.
  - programmatic affinity
- Focus
  - Surveillance & Reporting
  - Service Delivery & Care Coordination
- Data & Vocabulary
  - Standards
  - PHCDM
- Architecture



# UDOH FUTURE INTEGRATION ARCHITECTURE



# Lessons Learned from a Pragmatist on the Integration Frontline

Lesson 1: Integration occurs despite our best efforts to committee it to death.

Lesson 2: Linkage is much easier than consolidation.

Lesson 3: The goal of integration is prevention, not perfection.

(Barry Nangle, PhD, UDOH)



**"Success will occur in  
data integration  
not because of technology,  
but because of the dreams,  
enthusiasm,  
and dedication  
of people."**

**quote prepared for All Kids Count**





# QUESTIONS



# Contact Information

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