
Part III — Technical Architecture

Chapter 1 — Technical Architecture Introduction

Introduction

This section provides an overview of the Medicaid IT Architecture (MITA) Technical Architecture (TA), the third major component of the MITA Framework. The MITA TA provides an IT staff (State or vendor) with guidance and specifics on how to implement the MITA initiative.

This chapter answers the following questions:

- What are the key features of the MITA technical architecture?
- What is the difference between MITA and current Medicaid Management Information System (MMIS) technical architectures?
- What is the MITA technical architecture?
- How is the MITA technical architecture developed?
- What are the components of the MITA technical architecture?
- How do States use the MITA technical architecture?
- How does the MITA technical architecture benefit a Medicaid enterprise?
- How do States participate in developing the MITA technical architecture?

Purpose

The MITA Framework describes a logical TA for the Medicaid enterprise to align the common factors of State implementation.

States and the Centers for Medicare & Medicaid Services (CMS) will collaborate with vendors to define the TA, by doing the following:

- Creating an infrastructure for information exchange
- Identifying common requirements (i.e., Business Services and Technical Services)
- Developing implementation standards
- Identifying and developing selected reusable components
- Creating and maintaining enterprise models

State and CMS communication and cooperation will further aid the transition from the current MMIS and subsystem architecture to the MITA Enterprise Architecture, as States and CMS implement the components and infrastructure. Using the information exchange infrastructure, we will begin to do the following together:

- Develop transition plans and transition plan templates
- Create and share other tools and templates
- Deliver training and education on the use of MITA components and tools

What Are the Key Features of the MITA Technical Architecture?

This section provides an overview of the key features and benefits of the MITA TA and a background for the remaining sections. Several overarching concepts apply to all aspects of the MITA Framework. Those discussed here address the “what” of the MITA TA.

Standards First. The MITA TA will increase the use of data and technical standards to improve the cost effectiveness of IT development. The use of data standards will promote data consistency and enhanced sharing through common data-access mechanisms. The use of technical standards (e.g., open standards) will help integrate commercial off-the-shelf (COTS) solutions and encourages reuse of solutions within and among States, which will reduce development costs and development risk.

The MITA Framework will review both national standards for health and data exchange and open standards for technical solutions and use existing national standards wherever possible. If Medicaid-specific standards are needed, MITA will foster agreement within the Medicaid community and, where appropriate, submit standards to national standards bodies for review and approval.

Commonality and Differences Coexist. The MITA TA is designed to differentiate between processes, data, and technical solutions that are common to many State Medicaid agencies and those that are State-specific. Identifying common business processes allows States to define and reuse common solutions and thus to share development costs. The MITA models and templates are structured to capture and represent these differences and to accommodate cost-effective implementation of State-specific needs by using common solutions. States will participate in the development of the MITA models and templates, which will ensure the appropriate representation of both commonalities and differences.

The MITA Framework is technology-, organization-, and location-neutral. Although it is extremely important that States address these aspects, MITA gives States the flexibility as to how to do so and the essential building blocks to enable them to do so.

The MITA approach seeks to balance commonalities with differences, to allow standard mechanisms for interoperability and data exchange. A goal of MITA is to maximize benefits

across Medicaid enterprises, while promoting innovation and creativity in their implementation at the State level.

Business-Driven Design. The MITA TA is grounded firmly in enterprise architecture methodology to allow States to align IT solutions with their business needs. The MITA templates and models will help States identify and prioritize those needs and use common solutions to drive the TA. MITA will support alignment with State enterprise architectures. This business-driven design is limited to the common Medicaid business processes. The MITA Framework does not include State-specific business processes (e.g., State waiver process).

Built-In Security and Privacy. MITA defines security and privacy capabilities and weaves them into the TA. MITA identifies access requirements in the business processes, defines them within the data models, and implements them through the technical models. The MITA TA protects the Medicaid enterprise against known threats and, through evolution of the TA, respond to new threats. The MITA Framework does not include State-specific security and privacy concerns.

The MITA Framework includes mechanisms to extend MITA to accommodate individual State needs when a common approach is inadequate.

Although the concepts of the MITA TA apply to all areas — business processes, data, and technical solutions — the features of the MITA TA propose technical solutions. Aspects of these features are represented within individual models, but the combination of all models is required to fully represent the features. The Introduction to the MITA Framework provides an overview of the features that will help the technical staff understand why aspects of the models were created and enable nontechnical staff to understand the MITA TA without having to understand the models themselves.

Common Interoperability and Access. The MITA TA makes it possible to implement common interoperability and access. Interoperability refers to system-to-system communication. Access refers to system-to-person communication. As common technical, data, and process standards are collaboratively developed, reusable utility services can be identified. As an example, a single utility service for eligibility information could be used to exchange beneficiary eligibility information from various program systems to a single MMIS. Another example, of improved access is the use of PDAs to access multiple applications. Conversely, a single application can allow access from multiple devices, such as Web interfaces, PDAs, kiosks, or voice response systems (VRSS).

Adaptability and Extensibility. The MITA Framework allows for adaptations (which let individual States change the specifics of processes, data, or technical solutions, using configuration files) and extensions (which let States add functionality and capabilities). Adaptability also allows States to customize MITA common core processes to meet their unique needs. Extensibility allows States to add new functionality to MITA to meet their needs, yet still

meet MITA goals and objectives. Both characteristics build in the capabilities needed to accommodate both common needs and unique State needs.

Performance Metrics. The MITA Framework requires performance measurements. The Framework identifies what must be measured for all processes, and leaves it to individual States to determine the limits and thresholds for each item to be measured.

The use of standards and agreement on a set of common business processes and data standards makes it possible to develop standard performance metrics, measurement techniques, and corresponding utility services, which provide consistent measurement of business performance across the Medicaid enterprise. Performance metrics make it possible to track changes in programs and policies and evaluate corresponding changes in health outcomes. When results improve, it is important to understand why. A standard performance model will correlate resource inputs with business results to help organizations determine where to invest in additional resources (e.g., people or IT). Standard performance metrics will also help State Medicaid enterprises measure the performance of their contractors and the relative quality performance of providers.

What Is the Difference Between MITA and Current MMIS Technical Architectures?

Historically the MMIS was intended primarily as a financial and accounting system for paying provider claims accurately and promptly. However, as Medicaid has grown more complex, the number and the complexity of MMISs needed to support the Medicaid enterprise have increased. When Medicaid functions (e.g., managed care, clinical support, data analysis, fraud management, nonemergency transportation coordination, and prior authorization) became automated, they were usually added as separate systems, cobbled together with the MMIS, or, in some cases, hard-coded into the MMIS. These special purpose “best-of-breed” systems might require as many as a dozen different servers and user support systems (e.g., separate applications and call centers for provider services, recipient services, enrollment broker, pharmacy benefit management, clinical help desk support, data warehouse support, desktop support, nonemergency transportation (NET) support, fraud hotline, and prior authorization support). Each platform might have unique and often proprietary architecture, data standards, update cycles, and workflow requirements. As a result, these systems exchanged information with difficulty, at best. Medicaid administrators usually could not obtain an hourly consolidated overview of all provider and recipient activity because of this fragmentation. For example, a prior authorization authorizer might not be able to see all outstanding authorization requests (e.g., dental, pharmacy, hospital, durable medical equipment [DME], and physician) to understand an individual’s total program involvement.

Some State MMISs process most claim types under one architecture and one data standard but process other claim types (e.g., dental and pharmacy) through standalone systems, each with its own architecture and data standards. This might require that formats for names, addresses, dates, and code sets (e.g., for gender, location, provider, and recipient) be stored three different ways,

with three different meanings in the three separate claims-processing systems (e.g., the gender code might be 1, 2, or 3 in one system and M, F, or U in another). Translating these multiple systems to one standard for users and merging the data into the data warehouse for MARS and Surveillance and Utilization Review (SUR) reporting, profiling and trend analysis, and pattern recognition can be very difficult. Additionally, severe compromises can occur in data comparability and usability.

Although intra-State data sharing is difficult, inter-State data sharing (i.e., sharing among States) is even more difficult. The lack of standards requires extensive translation of data among States, which is a burdensome process. As a result, States share data only occasionally — sometimes only when absolutely necessary — and often use a manual process. Lack of data sharing means missed opportunities for fraud detection and for negotiating with providers to obtain the better rates they might offer other States.

There are other challenges. For example, end users must know which subsystem performs what function. They might also have to sign on to multiple systems to perform a single task, such as verifying eligibility and enrolling in several programs.

Changes in business rules, policies, or laws might also affect a system, including its applications, databases, and interfaces. As systems grow older, of course, they become increasingly difficult to change, as fewer personnel remain who know how best to maintain or change such systems. Different systems also run in their own platform-specific, proprietary environments. Current MMISs, for example, may have built-in, pervasive dependencies on proprietary technologies (e.g., a proprietary database management system or transaction processing system), which can make it difficult to insert new technology without (in many cases) doing a complete system replacement.

Table 1-1 summarizes MMIS issues and discusses how MITA will solve or mitigate them.

Table 1-1. Key Differences Between MMIS and MITA-Based Systems

MMIS Issues	MITA Solution/Mitigation
Difficulties in intra-State and inter-State data sharing because of lack of common data standards	To the greatest extent possible, MITA will rely on standards for health information and data exchange.
Difficulties in modifying multiple systems to accommodate business-required changes because of ad hoc, point-to-point interfaces	MITA is based on a service-oriented architecture (SOA) that defines common Business Services and Technical Services that can be modified relatively easily to accommodate changing business requirements.
Need for users to navigate through multiple functional systems to perform a single task	User tasks are designed as end-to-end processes invoked through a common user interface and implemented by orchestrating the necessary services across multiple systems transparently to the user. This eliminates the need for users to navigate through multiple systems.

MMIS Issues	MITA Solution/Mitigation
Difficulties in inserting new technology because of platform dependency of MMISs	MITA Technical Services are designed with layers of abstraction that ensure their vendor- and platform-independence and simplify the insertion of new technology.

Difficulties in intra-State and inter-State data sharing because of lack of common data standards. To the greatest extent possible, MITA will rely on national standards for health and data exchange and open standards for technical solutions. If Medicaid-specific standards are needed, MITA will actively seek agreement within the Medicaid community and, where appropriate, submit appropriate standards to national standards bodies.

MITA will encourage States to store data natively in the MITA-defined format wherever possible. If this is not cost effective, MITA will at least encourage States to import and export data in MITA-standard format.

Difficulties in modifying multiple systems to accommodate business-required changes because of ad hoc, point-to-point interfaces. MITA is based on a service-oriented architecture (SOA), as explained in the Application Architecture section of this chapter. An SOA defines common Business Services and Technical Services that can be modified relatively easily to accommodate changing business requirements.

Need for users to navigate through multiple functional systems to perform a single task. MITA's SOA has designed user tasks as end-to-end processes that are invoked through a common user interface and implemented by transparently orchestrating the necessary services across multiple systems to the user. This will eliminate the need for users to navigate through multiple systems.

Difficulties in inserting new technology because of the platform dependency of MMISs. MITA Technical Services are designed with a layer of abstraction that ensures vendor- and platform-independence and allows for the insertion of new technology without affecting the way services are invoked or the functionality they provide.

What Is the MITA Technical Architecture?

The MITA TA describes the current and future (near-term and long-term) set of Business Services and Technical Services, as well as their connectivity and standards, that a State can use to plan and specify the future IT systems of a State Medicaid enterprise. The MITA TA includes the following:

- Identifying a technology growth path
- Identifying specific services, both technical and business
- Defining standard interfaces to all services

- Defining a MITA technical infrastructure
- Cataloging implementation of services for other States to reference

How Is the MITA Technical Architecture Developed?

The MITA TA is business driven. Because Medicaid information systems exist to support the needs of the business, the MITA TA must support not only the MITA vision, but also business strategies and plans. It must also link technology choices to business needs. Some technologies will not be appropriate. The MITA vision, goals, and objectives will help in developing key components of the TA business vision and architecture components. The MITA TA does not implement technology simply because it is available. Rather, it has a specific purpose and is intended to meet the expectations and needs of its stakeholders.

The MITA TA development includes the following activities:

- Defining the Technical Capabilities needed to support the Medicaid mission and goals and the MITA goals and objectives
- Developing a conceptual architecture
- Defining and specifying Business Services for each applicable business process
- Breaking down the Technical Capabilities into lower level Technical Services
- Defining and specifying Technical Services for each category of services defined in the Application Architecture
- Using the Technical Services to develop the MITA technical reference model
- Assigning standards to each Technical Service in the technical reference model (standards assigned in three categories: current, recommended, and emerging)

MITA Technical Architecture Development Process

Figure 1-1 shows how the MITA TA is developed. This involves a process that focuses on defining the set of common MITA services that make up the MITA SOA, including the following:

- Business Services
- Technical Services, including data services, access services, interoperability services, and security and privacy services
- MITA infrastructure

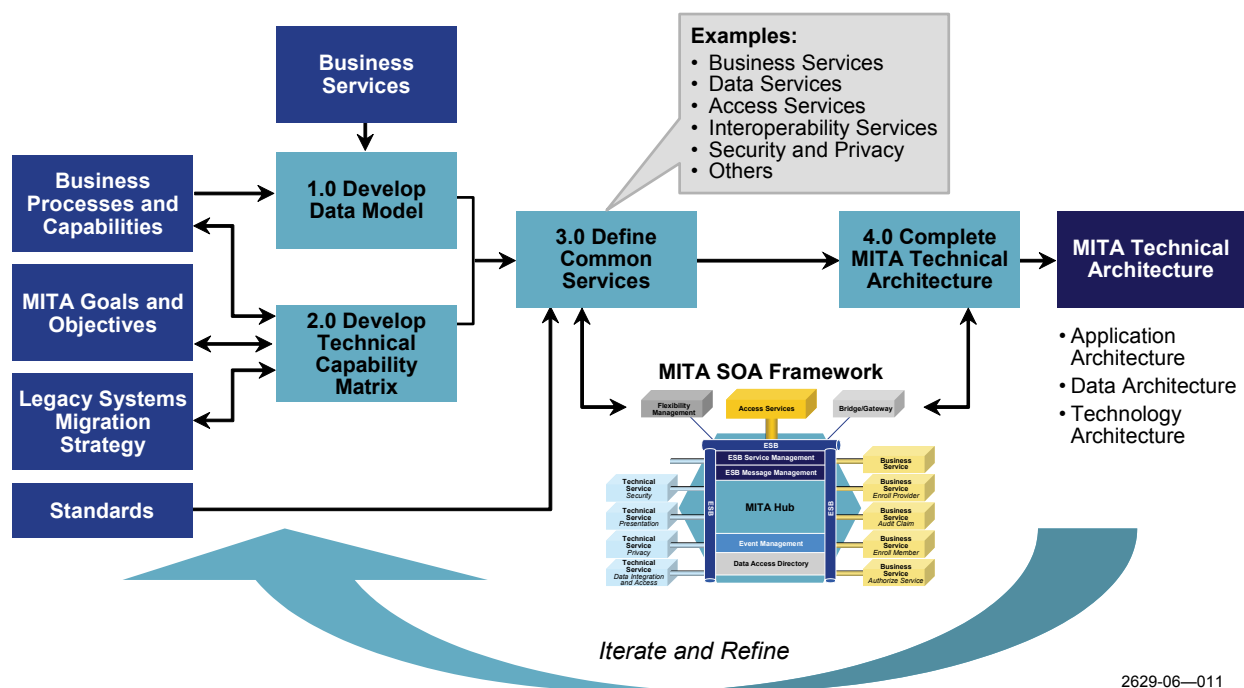


Figure 1-1. Developing the MITA Technical Architecture

These services are allocated to complete the development of the MITA Application, Data, and Technology Architectures. We now describe the process activities in detail.

Activity 1 — Develop Data Model

Successful data sharing is a key success factor for the MITA Enterprise Architecture. Development of the MITA Data Model focused on identifying the data elements needed by the MITA end-to-end business processes to allow for the identification of standards to enable successful sharing across States. Like the Information Architecture (IA), the TA is developed iteratively.

Activity 2 — Develop Technical Capabilities

The MITA Technical Capabilities correspond to the technical functionality that provides one or more of the following:

- **Enabling one or more Business Processes/Capabilities.** Examples include forms management and workflow for automating provider enrollment.
- **Realizing one or more MITA goals/objectives.** An example is enabling the MITA objective, “Promote reusable components – modularity,” by Technical Capabilities that are part of an SOA, such as the use of an Enterprise Services Bus (ESB)
- **Enabling the transition of a legacy system or process to the MITA Enterprise Architecture.** An example is the development of a wrapper for integrating a legacy

mainframe application (e.g., written in COBOL and using an IDMS database) into the MITA SOA.

The MITA Technical Capabilities are grouped into categories and subcategories. The top-level categories are as follows:

- Business-Enabling Services
- Access Channels
- Interoperability Channels
- Data Management and Data Sharing
- Performance Measurement
- Security and Privacy
- Adaptability and Extensibility

The MITA Technical Capabilities are developed in the following way:

- Analyzing the business processes and capabilities, MITA goals and objectives, and approaches for migration of legacy systems
- Mapping each of these sets of inputs into a set of Technical Capabilities
- Allocating them to the top-level categories listed above

A more detailed discussion of the development of Technical Capabilities is presented in Part III Chapter 5, Technical Capabilities. This chapter describes the Technical Capability Matrix (TCM), which is the end product of the process of defining technical capabilities.

Activity 3 — Define Common Services

MITA Common Services include those that States define for implementation as part of migrating to the MITA SOA, including the following:

- Business Services
- Technical Services, including data services, access services, interoperability services, security, and privacy services

Part III Chapter 4 identifies MITA Business Services and the approach used for their development.

Technical Services are developed by breaking down the Technical Capabilities into lower level services needed to support end-to-end business processes. The process for defining Technical Services is ongoing, and future versions of the MITA Framework document will include additional services.

Activity 4 — Complete MITA Technical Architecture

After the preceding activities are completed, the remaining artifacts for the MITA TA can be developed. The following paragraphs describe the development of each artifact.

The MITA Data Architecture

Data Services are analyzed to define design patterns for providing each service. Examples of data management design patterns include designing the data hub, which allows integration of data from multiple data sources.

The MITA Application Architecture

The MITA Application Architecture is designed as an SOA. The definition of the Business Services and Technical Services was performed in Activity 3 above. The completion of the Application Architecture consists of describing the SOA Framework for the integration, orchestration, and management of these services, including defining mechanisms such as the ESB and the Service Management Engine.

The MITA Technology Architecture

Developing the TCM and defining Technical Services was performed in previous activities. Completion of the TA consists of performing the following activities:

- Developing the Standards Reference Model, which involves subdividing the Technical Services defined in Activity 3 to levels at which a technical standard can be associated with each of the subdivided, lower level services
- Assigning standards to each Technical Service in the Standards Reference Model

What Are the Components of the MITA Technical Architecture?

The MITA TA is organized as follows:

- MITA principles, goals, and objectives (Chapter 2)
- Introduction to the concept of SOA (Chapter 3)
- Conceptual Technical Architecture Model (presented later in this chapter)
- Business Services (Chapter 4)
- Technical Capability Matrix (Chapter 5)
- Technical Services (Chapter 6)
- Application Architecture (Chapter 7)
- Technology Standards (Chapter 8)
- Solution Sets (Chapter 9)

These architectures will evolve throughout the MITA life cycle. The level of detail in each is tailored to meet the specific needs of the intended audience. **Figure 1-2** provides an overview of the components of the MITA Framework.

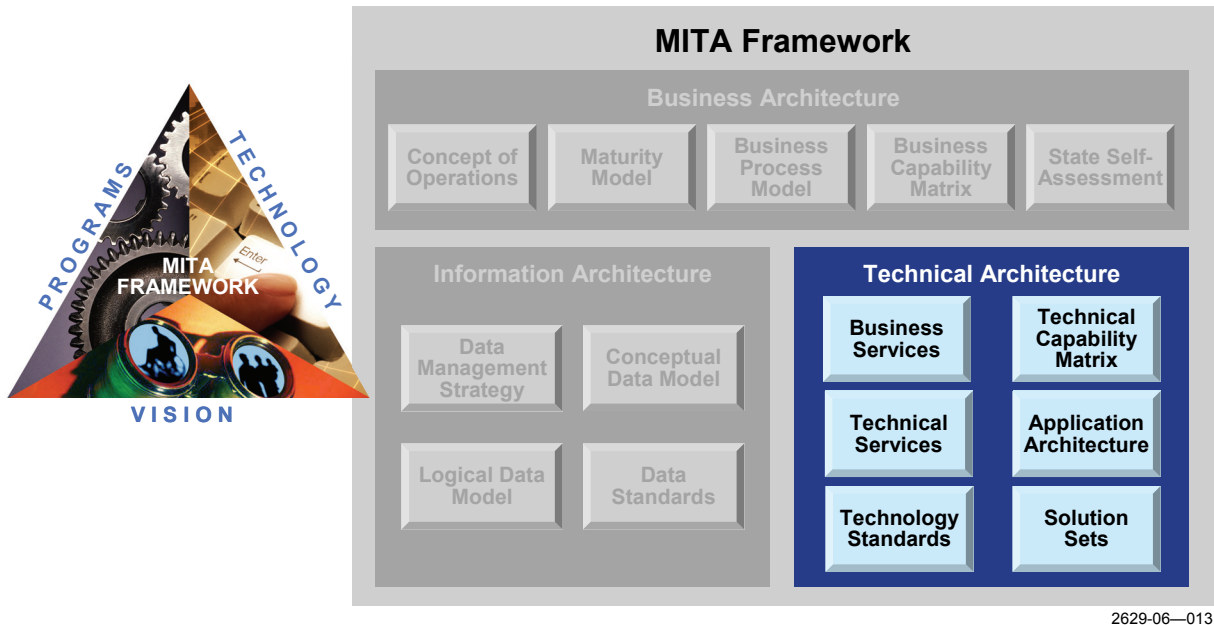


Figure 1-2. Overview of the MITA Framework Components

The following is a brief overview of each component.

MITA Technical Principles, Goals, and Objectives

The MITA technical principles, goals, and objectives provide the basis and direction to all decisions related to the technical enablers of MITA.

Conceptual Technical Architecture Model

The Conceptual Technical Architecture Model is a high-level view of the entire architecture from a technical perspective. It ties the key features of the MITA Enterprise Architecture together to show how the MITA Enterprise Architecture achieves interoperability and data sharing across the Medicaid enterprise.

As shown in **Figure 1-3**, The Conceptual Technical Architecture Model presents the “big picture” view of the MITA architecture across the entire Medicaid enterprise. This big picture view is detailed in the Data Architecture, Applications Architecture, and Technology Architecture into specific services, architecture patterns, and standards that States can use to implement MITA-conformant systems in the future.

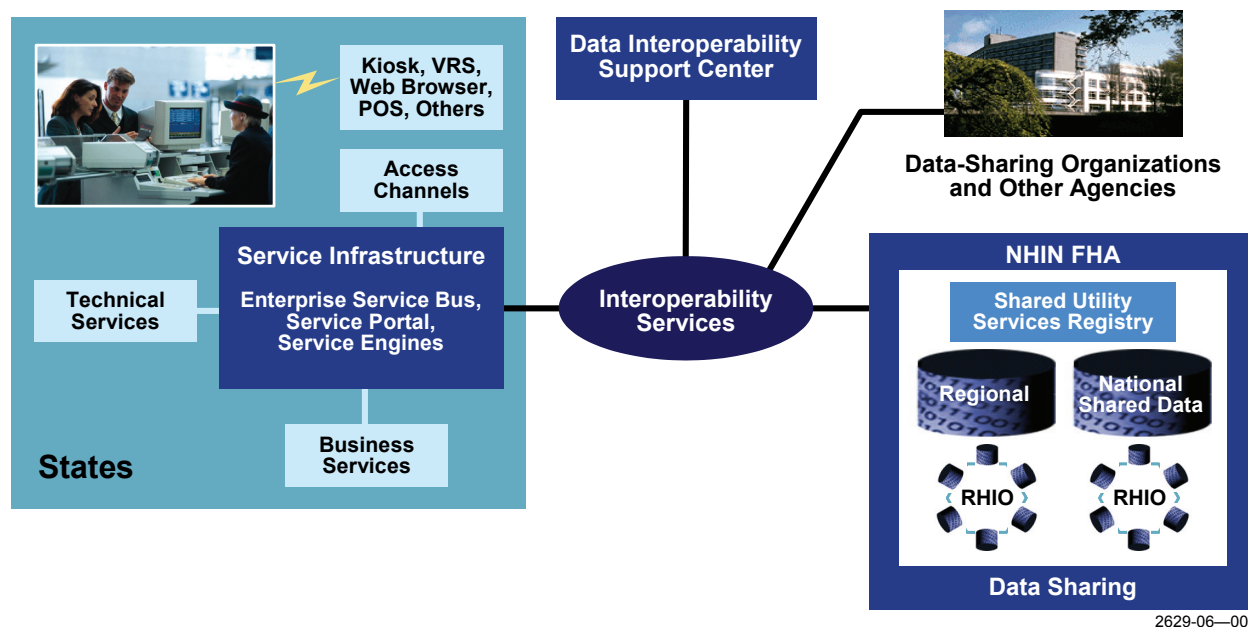


Figure 1-3. MITA Conceptual Technical Architecture Model (Thumbnail)

Key Elements of the Conceptual Technical Architecture Model

■ **User Interaction with Business Processes**

Users access the system via access channels and pass through security services for authentication and authorization before being given access to the Business Services. The Business Services invoke common utility services to access needed system resources and capabilities, perform the needed processing, and generate outputs in a consistent manner. The architecture elements are as follows:

- **Access Channels.** MITA supports user access to applications via several access devices (e.g., Web browsers, kiosks, PDAs, and VRSs) through a standard set of access channels.
- **Security Services.** MITA integrates access channels with security capabilities to interact with Business Services. User access is role-based, and access channels are integrated with security and privacy services to provide role-based access to the system resources that each user is authorized to access.
- **Business Services.** MITA’s Business Services consist of common business applications that States can customize to meet their individual needs. MITA supports the customization through adaptability features that allow States to tailor applications and add capabilities to extend the business functionality that those applications provide.

- **Core Utility Services.** MITA’s core utility services ensure that interoperability, data sharing, performance measurement, and standard business applications and adaptability functions are performed consistently.

■ Data Sharing Interfaces

MITA’s foundation is an approach that permits secure data sharing within States, at the regional level, nationally, and with public health or other external organizations. MITA will rely to the greatest extent possible on national standards for health and data exchange. Where Medicaid-specific standards are needed, MITA will foster agreement within the Medicaid community and, if appropriate, will submit standards to national standards bodies. MITA’s data-sharing conceptual design uses the following mechanisms:

- **Hubs** that allow for transparent information access from a variety of sources, including organizations within or external to Medicaid. Hubs allow States to retain control and ownership of their data yet allow others to view that data through access mechanisms and interoperability channels. States can also use hubs to transfer processing control from one system or organization to another to complete a multiorganization transaction. MITA will develop a consistent set of exchanges, services, and agreements for those interfaces.
- **Regional Shared Data** and **National Shared Data** that States can access frequently and that can be stored in centralized repositories to improve performance.
- **Security Perimeters** that surround the data and hubs to perform authentication, access definition and control, intrusion detection, and other security functions.
- **Data Sharing** within the Medicaid enterprise, both inter-State and intra-State, and **Data Sharing Interfaces** to external data sharing partners, through standardized message and transport protocols to maximize reuse and consistency among MITA entities.
- A **Shared Utility Services Registry** to provide common services, such as translation, gathering and delivery of data, and event notification.

■ Interoperable Data Management

- **Interoperability Channels** to allow system components to exchange data in a standard way. These channels allow access to data in a secure way regardless of where the data is located. Individual channels will be defined based on the topic and type of data to be exchanged. A common set of channels provides a standard set of virtual interfaces managed from a security, privacy, contingency, and availability point of view. Access to each channel will be through role-based access control, using access checkpoints that senders and receivers can control.
- **Strategic Policy Management and Measurement** capabilities supporting all Federal and State policy makers and staff will use a common framework to define policies, create measures, perform strategic analyses, and create performance

reports. MITA will also provide strategic interfaces with other healthcare partners, such as for a public health surveillance capability (one of the initial elements of the Federal Health Architecture). Strategic Policy Management and Measurement capabilities include the metadata and service registries and repositories with the policy, performance, and outcome management tools and storage capabilities for strategic data. Strategic capabilities will provide shared resources and services that focus on sharing and integrating public health information for specific and targeted use by the Medicaid community.

- **Adaptability and Extensibility** concepts provide for common, unique business features by allowing States to build adaptations and extensions into models.

■ **Service Center**

The Service Center is a collaborative environment for the implementation and transition of MITA. The Center includes a repository and a set of tools that let States develop their systems consistently through sharing and reuse of MITA utility services, specifications and components, business processes, and data models.

Introduction to the Concept of SOA

SOA forms the underlying technical infrastructure for MITA. This introduction provides background material on SOA and describes how it will be used by MITA for the Medicaid enterprise. SOA will allow Medicaid processes to be developed as loosely coupled services that promote interoperability and a plug-and-play design.

Business Services

A Business Service is software that implements a business capability of a business process. It is the basic element in an SOA and has a defined interface for its invocation, performs a defined function that corresponds to the capability, and returns defined results. MITA defines a Business Service for each business capability.

One of MITA's goals is to provide services that have concrete meanings at the business level. During the development of the business process, MITA develops an entry in the Business Capability Matrix (BCM) for each process. (For a more detail discussion of the MITA Business Process Model and Business Capability Matrix, refer to Part I Chapter 4 and Part I Chapter 5, respectively.) After the MITA Business Processes have been identified, MITA develops its Business Services — one for each business capability (non-Level 1 and, optionally, Level 2), as shown in **Figure 1-4**.

The MITA TA includes coarse-grain Business Services. These services provide the functionality of individual Medicaid business processes. As described in Part I Chapter 4, Business Process Model, these processes provide access to functionality (e.g., Enroll Member) or access to shared data (e.g., access to member registry). These Business Services define what a Medicaid enterprise needs to implement for the required business processes. The goal of the MITA TA is to specify business services that allow interoperable Medicaid business processes.

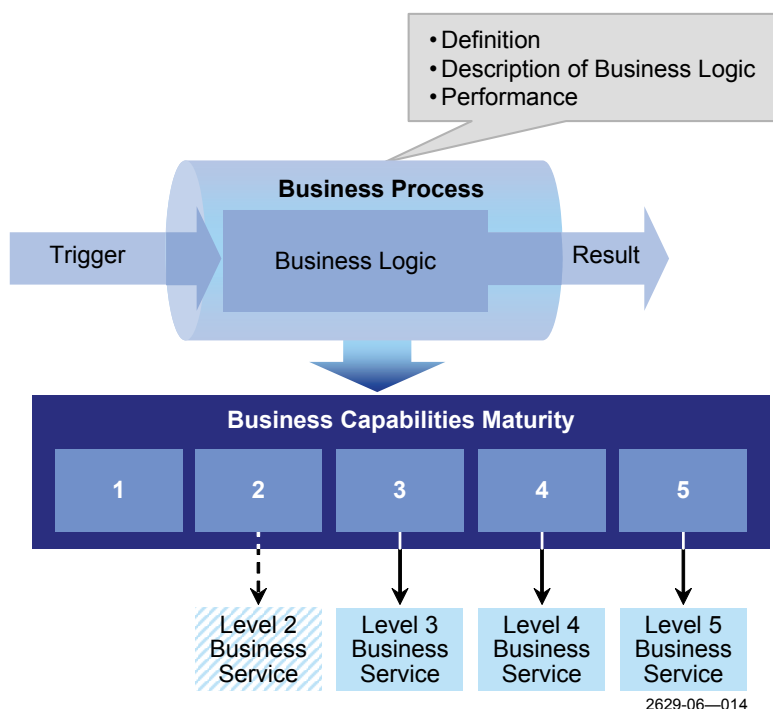


Figure 1-4. Business Process, Business Capability, and Business Service Relationships

Technical Capability Matrix

The MITA TCM defines a set of high-level (coarse-grained) technical functions needed to do the following:

- Enable the MITA business capabilities
- Support the success of the Medicaid mission and goals
- Meet the MITA goals and objectives

The TCM supplements the BCM in defining a benchmark for States to transform themselves in accordance with MITA principles. Each Technical Capability consists of one or more Technical Services.

Technical Services

Technical Services consist of a detailed set of technical functions that collectively define the MITA technology infrastructure. Like a Business Service, each Technical Service has a defined interface for its invocation, performs a defined function that corresponds to the capability, and returns defined results. Examples of Technical Services include security and privacy, data access, logging, presentation, and device-specific services.

Application Architecture

The MITA Application Architecture provides the information necessary to develop enterprise applications through the use of Business Services and Technical Services. In this context, an *application* is a collection of software services that implement a business process or capability. As shown in **Figure 1-5**, the Application Architecture consists of a set of diagrams that show how Business Services and Technical Services are invoked and how they are coordinated to implement end-to-end business processes.

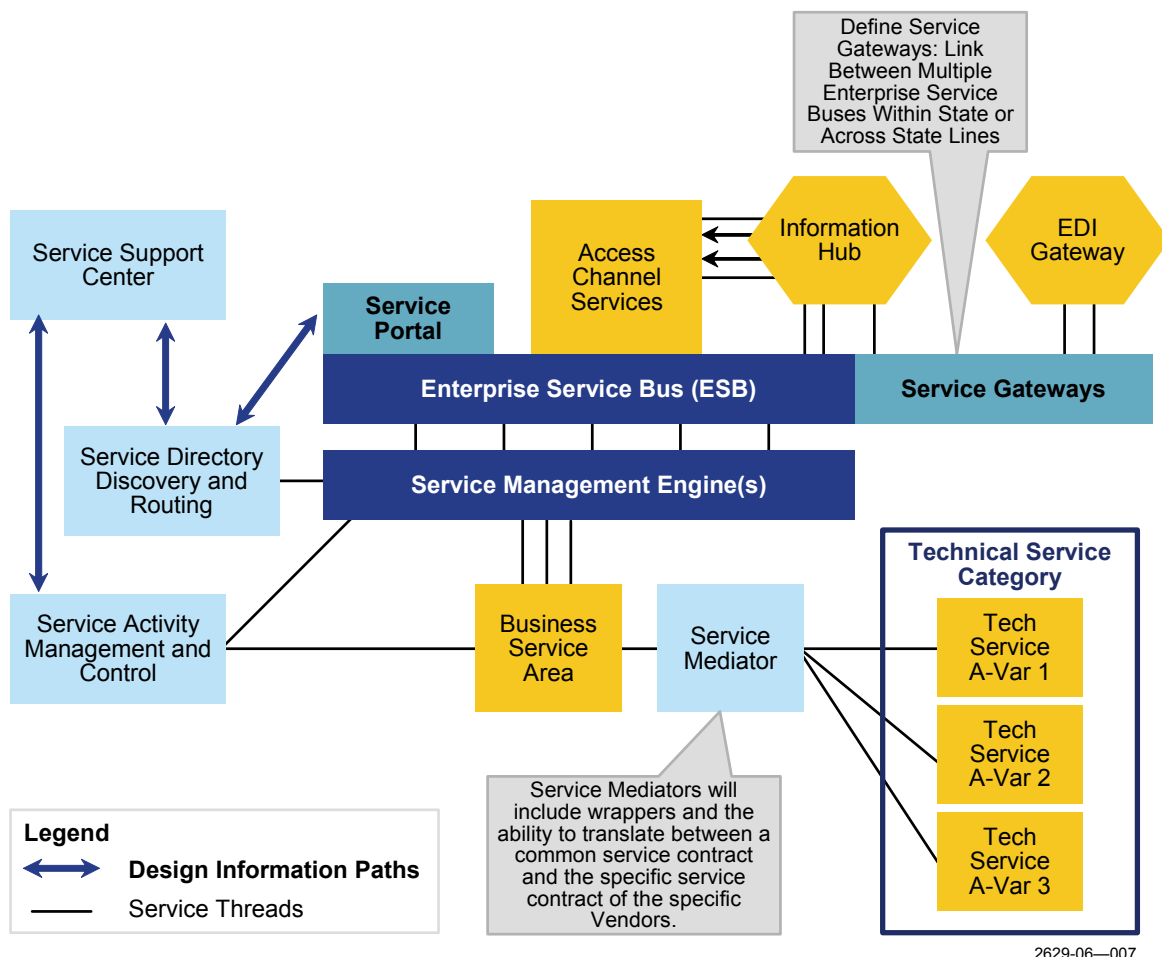


Figure 1-5. MITA Application Architecture

Technology Architecture

The MITA TA consists of the following:

- Technical Reference Model (TRM)
- Standards Profile

The TRM is a list of Technical Services, either aggregated or broken down into levels for which standards are specified. The Standards Profile includes the following:

- Current standard(s) used
- Recommended future standards
- Emerging standards (long term)

Solution Sets

Solution Sets document a specific implementation pattern of a process or service. The MITA Framework provides a template to be used to capture metadata on the implementation. Templates are stored in a repository that States can browse to identify the services that have been implemented and the technology options used in the implementation. States are responsible for entering data into the templates. MITA Solution Sets consist of resources (e.g., requirements specifications, design approaches/patterns, design specifications, applicable standards, and test cases) that can be incorporated into RFPs. MITA will map Solution Sets to Business Services and Technical Capabilities to assist States with implementation planning.

The MITA repository is a future MITA resource and is not currently available.

How Do States Use the MITA Technical Architecture?

The MITA TA should be used as a reference document for the IT portion of a Medicaid enterprise. As a reference document, the TA provides a conceptual view of the Medicaid technical enterprise and a source document to browse for alternative solutions. The TA should also be used as a requirements document that specifies the details related to Business Services, Technical Services, and the IT infrastructure. In this role a State can use the document as a source for APDs and RFPs.

How Does the MITA Technical Architecture Benefit a Medicaid Enterprise?

The standards-based approach, along with the SOA, facilitates the reuse of solutions and the integration of COTS to reduce IT costs and IT development time and risk for both States and the Center for Medicaid and State Operations (CMSO). Such an approach reduces initial investment cost and risk because solutions can be reused. The SOA design also reduces maintenance costs by simplifying the process of making changes. Change is always difficult, and services and standard service interfaces can provide a range of migration paths. For example, a single service can direct transactions for an encounter that occurs after a new policy goes into effect for a new system and direct older transactions to the old system.

Medicaid can respond faster to statutory, programmatic, and technology changes because the SOA and services are adaptable and extensible. A combination of the standards approach, services, a common approach to security and privacy, and the hub architecture provides easier access to data and information. Increased data exchange and access will also improve fraud detection and investigation, help detect health patterns (including disease and bioterrorism) early, and improve health outcomes. States can also improve investment decisions with better access to information and common performance metrics, and they can invest in solutions that will improve health outcomes and reduce payments for preventable diseases. States can then redirect dollars they currently spend on preventable diseases or on IT maintenance to more pressing needs.

The MITA TA can improve statistical analysis by applying data standards (which will improve the quality of the data), standard performance metrics, and enhanced data exchange and sharing. States can use improved statistical analysis for trending, which will improve their IT organizations' strategic planning; for comparative analysis (e.g., comparing current performance with historical performance); and for normative analysis (e.g., comparing performance against "industry standard" performance). In short, States can use information from the MITA TA to streamline their business processes, invest in appropriate resources, improve service to beneficiaries, better monitor patient safety and patient care, and improve health outcomes.

MITA's Enterprise Architecture methodology supports State Medicaid alignment with State enterprise architectures. MITA supports State autonomy by describing businesses, data, and technical models in terms of common solutions that allow State-specific implementations and make possible the development of services that are adaptable and extensible.

How Do States Participate in Developing the MITA Technical Architecture?

States can participate in developing the MITA TA by doing the following:

- Participating in working groups that define the Technical Maturity Model and TCM
- Participating in working groups that define the standard interface for each Technical and Business Service
- Helping to define standards for the MITA infrastructure
- Submitting implementation details into the repository as MITA Solution Sets

Conclusion

The MITA TA helps ensure that implementation and interoperability are plug-and-play capable. With participation by States, partners, and other stakeholders, the MITA TA will become more specific as it is refined over time. State Medicaid enterprises will evolve to optimize adaptability, flexibility, interoperability, and data sharing. This evolution will allow major improvements in policy development, decision making, and day-to-day operations.