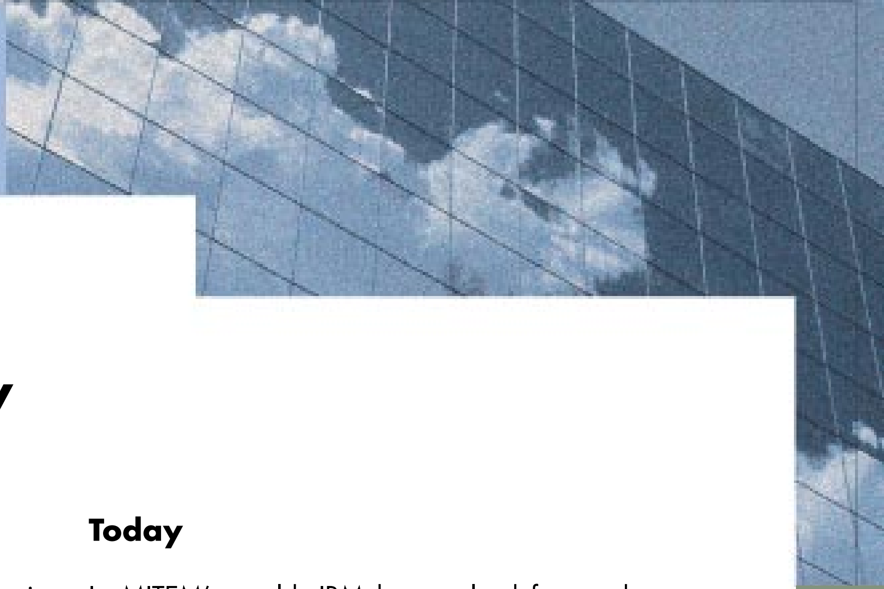


Using Mitem*View* to accelerate the delivery of IBM solutions

History

MITEM is a member of the IBM Partners in Development program. MITEM has enjoyed a strong affinity with the IBM Company, products and protocols since 1985. In fact, three of MITEM's board members are ex-senior IBM executives, including our President, Gale Aguilar, who, during a 27-year career, directed the announcement of many IBM products including S/370, MVS, SNA, and DB2.

When MITEM shipped the initial version of Mitem*View* in 1989, the first host system we connected to was an IBM OS/390 mainframe. MITEM has always provided first-class support for IBM's networking and communication technologies. MITEM developed its own SNA protocol stack (including DLC support) and supports IBM Personal Communications along with Microsoft and Novell's SNA Server Gateways. As the TCP/IP protocol became prevalent in IBM installations, MITEM quickly added support for the TN3270, TN3270E and TN5250 protocols.

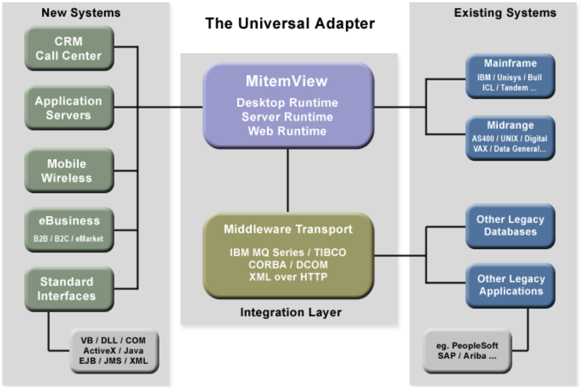
In the last decade, more than 75% of MITEM's customers have had at least one IBM mainframe or midrange system that they have used Mitem*View* to integrate and extend. Mitem*View* has been challenged by some of the most intensive data processing applications. For instance, as far back as 1992, Mitem*View* was deployed for use in the Holiday World-wide Reservation System. At that time, the legendary Holidex system ran IBM's Transaction Processing Facility (TPF) and processed 26 million reservations a year that serviced three geographically dispersed call centers. Mitem*View* proved able to maintain system performance and reliability in this ultra high-end environment and was used by 1,800 reservation agents for many years. More recently, Mitem*View* has become the integration software of choice for the customer service operations of America's electric power utilities – 24 call center installations and counting. You may already know that IBM's CICS technology was originally developed to help manage the high transaction volumes of this special 24x7x365 user community.

Today

In MITEM's world, IBM has evolved from a host system vendor to a major player at every level in the system architecture stack. For instance, IBM's MQSeries middleware is the most widely installed messaging protocol. IBM's MQSI message broker is also commonplace. Most recently, IBM has become a major force in the application server market with its WebSphere product line (that also now encompasses the MQSeries family). Specifically, IBM's WebSphere application servers offer a J2EE runtime environment and tools for creating, deploying and maintaining Web applications.

We describe Mitem*View* as the 'Universal Adapter' and this includes being able to cast Mitem*View* as a *spoke* on any other vendor's *hub*. We developed our NXTier Services technology to dramatically simplify and standardize integration with other servers – like IBM WebSphere. Likewise, one of our core tenets is to make Mitem*View* 'Infrastructure Ready'. Rather than marketing yet another infrastructure technology, or worse yet, forcing our customers to place bets on which infrastructure technologies will win, MITEM is committed to maintaining compatibility with all leading message protocols – especially IBM MQSeries.

In short, Mitem*View* can add value to, and extend the integration functionality of, WebSphere and MQSeries implementations. Specifically, Mitem*View* should be used to accelerate the deployment and smooth the implementation of IBM WebSphere and/or MQSeries projects.



Mitem*View* and MQSeries messaging

MITEM natively supports MQSeries messaging by fully implementing and insulating the MQSeries API in a pre-built Mitem*View* adapter. This advanced adapter offers multiple advantages over the typical low-level API implementations that are found in other integration products:

- Substantially less programming
  - □ Transform an entire screen of host data to/from an MQSeries message in one step
- Graphical interface for message processing
- Faster message processing at runtime
- More robust error handling & recovery
- Externalization of host dependent meta-data
  - □ Easier to maintain integration links
  - □ Connects with external repositories

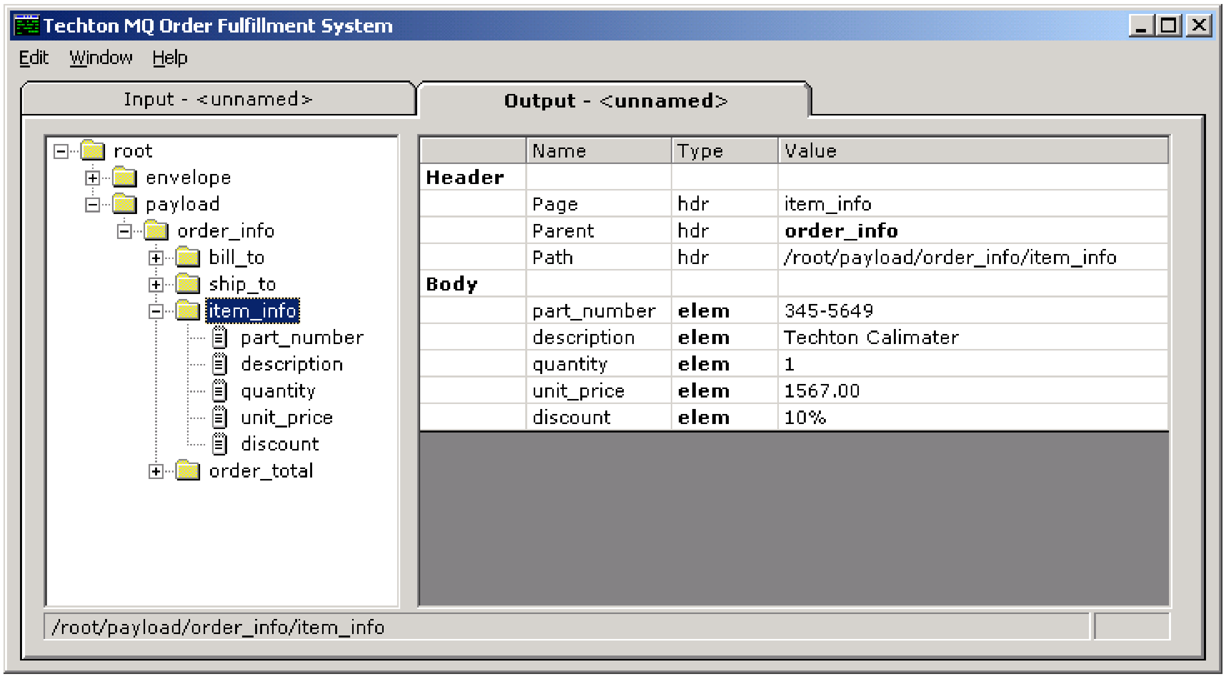
MITEM offers a 'pick-and-mix' selection approach, allowing different message and document types (e.g. XML) to be transmitted over different protocols and transports (e.g. MQSeries). By insulating the developer from working with low-level APIs, message formats and protocols can be changed in the future without requiring a major re-write of the application.

A defining characteristic of the Mitem*View* framework is the real-time processing of messages across multiple in-bound and outbound connections. This real-time, asynchronous processing enables maximum flexibility in multi-tier server architectures and produces superior end-to-end system performance. Mitem*View* performance levels meet or exceed the near-real-time performance of MQSeries, while eliminating the complex conditional programming required to co-ordinate multiple MQSeries transactions.

Since most existing mainframe and AS/400 applications can't talk MQSeries messages, developers are faced with re-programming existing interfaces and potentially destabilizing production code. In general, depending on complexity, typical MQSeries projects require 1-to-2 man months of design and development for *each* MQSeries host transaction. Creating the equivalent host transaction with Mitem*View* would require, on average, 1-to-3 man days. Furthermore, multiple host transactions can be combined, or marshalled, into a single MQSeries message, thereby reducing the total number of MQSeries transactions that need to be developed and managed.

Mitem*View* is used to accelerate the delivery of application functionality by bridging the gap between MQ-enabled and non-MQ-enabled transactions. As new MQ-enabled transactions become available, the old terminal data stream interface can simply be replaced. The result is quick business wins that have been delivered in a manner convergent with the emerging MQSeries infrastructure.

Example: Processing hierarchical MQSeries messages in Mitem*View*



```
root
  envelope
  payload
    order_info
      bill_to
      ship_to
      item_info
        part_number
        description
        quantity
        unit_price
        discount
      order_total
```

	Name	Type	Value
Header			
	Page	hdr	item_info
	Parent	hdr	**order_info**
	Path	hdr	/root/payload/order_info/item_info
Body			
	part_number	**elem**	345-5649
	description	**elem**	Techton Calimater
	quantity	**elem**	1
	unit_price	**elem**	1567.00
	discount	**elem**	10%

/root/payload/order_info/item_info

Mitem*View* and WebSphere servers

Every hub needs it spokes. Mitem*View* extends the integration functionality of WebSphere servers by adding the industry's best support for non-invasive integration with legacy systems. Even when integrating with IBM systems (mainframe and AS/400), Mitem*View* has proven to be quicker to implement, have faster throughput, and be easier to maintain than IBM's Host Publisher product. In a recent direct comparison between Mitem*View* and Host Publisher, a large public utility found that Mitem*View*'s throughput was at least 5 times greater than Host Publisher.

Beyond the IBM host system environment, only Mitem*View* can be trusted to non-invasively integrate with other common legacy systems like Tandem, Unisys, Bull, ICL, Digital VAX, character-mode UNIX, Hewlett-Packard and Data General.

Connecting Mitem*View* with WebSphere

MITEM's NXTier Services technology allows any application on any platform to access Mitem*View* services in a loosely-coupled way.

NXTier (pronounced next-tier) enables a collaborative relationship to be formed between Mitem*View* and an independent application running on a remote system. This target system can be any Web or Application Server - like WebSphere - that requires access to Mitem*View* services.

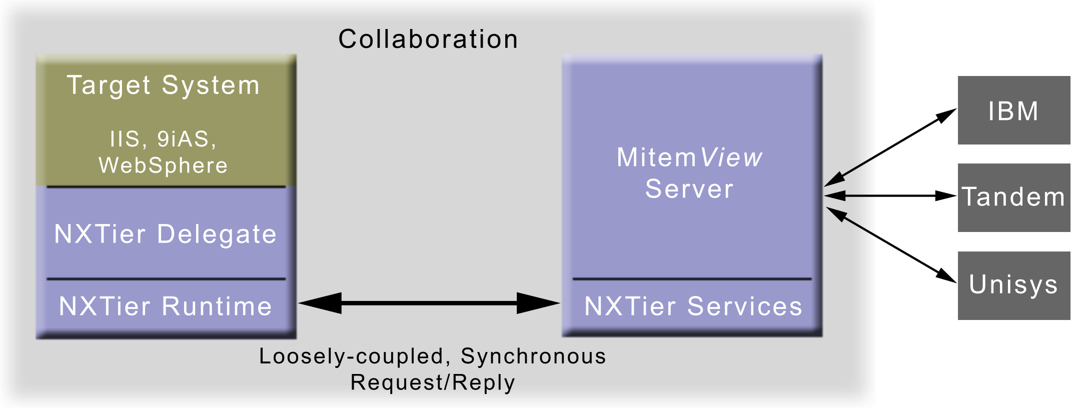
A NXTier interface consists of an *NXTier delegate* that uses an *NXTier runtime* to form a *collaboration* with a Mitem*View* Server that has *NXTier Services* enabled.

Delegates are lightweight software components that install on the WebSphere server. They are lightweight, to avoid placing load on the server, and expose a simple interface that is easy to configure and maintain. Delegates use a synchronous, request/response model to communicate between the WebSphere server and a particular instance of Mitem*View*. Because Delegates follow a synchronous model, they are designed for interfacing with multi-threaded server applications.

The NXTier Toolkit provides for the rapid development of Delegates in any programming language and for the deployment of Delegates to any platform. Today, MITEM supplies a 'C' reference implementation (Win32), and Microsoft COM and Pure Java implementations. MITEM has ported the NXTier Runtime to multiple platforms including Windows, UNIX, and selected PDA platforms running Windows CE. Future platforms will include Palm OS PDAs and the IBM OS/390 environment.

A NXTier Collaboration requires no programming of communication or control logic. The protocol and underlying communication services are hidden from view. Messages are exchanged and data items are passed back and forth by using just a few simple commands.

NXTier provides an *alternative* to other distributed application architectures such as COM, Java RMI and Messaging (JMS, MQSeries, etc). While Mitem*View* will continue to co-exist happily in such environments, NXTier provides several important advantages including:



Loosely-coupled: NXTier applications do not need to predefine an interface to work in a distributed environment. Technologies like COM and CORBA make use of precompiled interface definitions, which means that changes to one side may invalidate the interface and require both sides to be rebuilt.

Auto Messaging: Traditional messaging systems require manual formatting of outgoing messages and manual parsing of incoming messages. With NXTier, all such message processing occurs automatically.

Lightweight: NXTier provides a very simple model that gives it a performance advantage, and also makes it easy to port to different platforms. This portability increases the likelihood that MITEM can produce a delegate for any system in your enterprise.

Easy to configure: NXTier's simple model makes configuration trivial, and eliminates many of the problems associated with registering components – a common grievance with COM and CORBA implementations

Using JCA instead of NXTier

In addition to our own NXTier technology, MITEM is committed to building adapters that are compatible with the Java Connector Architecture (JCA). The JCA standard is somewhat of a moving target, and MITEM stays current with industry developments. MITEM is fully committed to producing JCA complaint adapters and we are carefully monitoring IBM's progress in this regard.

Conclusion

With MITEM's commitment to IBM protocols and platforms, we are well positioned to complement IBM's own products by offering pre-built integration that dramatically accelerates the delivery of projects, while protecting future compatibility.

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