

AMI Technical Overview

AMI is 3Forge's performance platform enabling users to interact with data. The software can be installed onsite, in the cloud, or as a service. It is comprised of 3 seamlessly integrated components, which can be run as a single process or separately.

Components

- **AMI Web**
Web based real-time dashboard builder.
- **AMI Center**
Real-time In-memory Columnar Database and CEP engine.
- **AMI Relay**
Concurrent data virtualization/connectivity layer.

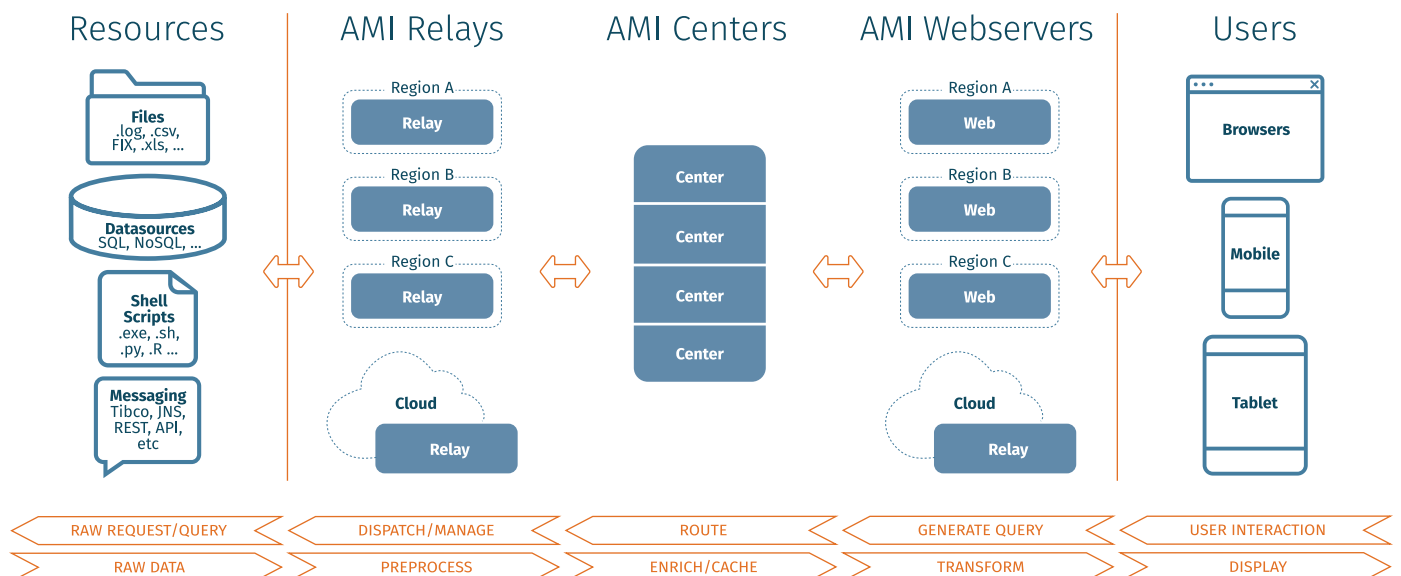
Design Goals

- **Easy Install**
Dependency free installs on Windows, UNIX, and Mac OS.
- **Scalable**
Distributed for globally disperse enterprise infrastructures.
- **Fast**
Each component has been developed ground up with speed and efficiency in mind.
- **Comprehensive**
Countless pre-built adapters for data-sources, file formats, messaging.
- **Extendable**
Plugins for Entitlements, Visualizations, Data Access, etc.
- **Lightweight**
Fast performance even on a 2GB Raspberry Pi.
- **Secure**
Auditable, granular data access control, white/black listing, etc.

Enterprise Scaling

- **User-Scaling**
Add webservers for regional distribution of data and end-user load.
- **Data-source/Messaging**
Scale relays for distributed/localized data access.
- **Map Reduce**
Add in-memory databases for distributed calculations of big datasets.
- **High Availability**
Relays can connect to multiple servers providing high availability.

The platform can be elastically distributed across separate hosts and/or regions.



AMI Web Features

A Custom Performance focused Webserver and integrated Dashboard builder.

- **Compatible**
Supports all Major Browsers/Containers (Ex: Chrome, Firefox, Finsemble, Openfin).
- **Real-time**
Publishing of data through ajax/web-sockets to the frontend.
- **Consistent Experience**
Dashboards are built, published & consumed using the same frontend.
- **Fast**
Real-time Tables, Trees, Charts, Heat maps, 3D and Geographic maps designed to render millions or data points by only pushing minimal necessary data to the browser.
- **Comprehensive**
Native Multi-Monitor Support, desktop notifications, PDF, excel & CSV export.
- **Forms**
Drag and Drop Form builder with dozens of widgets and responsive layout.
- **Cross-Platform**
Supports CORS technology allowing distinct dashboards to be linked.
- **Extendable**
Build workflows and dynamic user experiences using AmiScript.
- **Reactive Layouts Across Devices**
Scaling across device types (desktop, surface, mobile of choice).
- **Team development**
Integration with popular source control products (GIT, Perforce). Dashboards can be split across many files, sharing components across dashboards.
- **Global**
Localized time-zones, numeric and international text formatting supported.
- **Customizable**
Fully style-able through css style sheets. Using nested windows, tabs, dividers & forms applications can be laid out in any configuration.

AMI Center Features

A Custom Performance focused In-memory Columnar Database, Event Processor and Message Router.

- **Fast & Efficient**
Insert/Update/Delete billions of records. BLOB support for large off-heap data.
- **Reliable**
Guaranteed messaging and on disk synchronous storage/recovery.
- **Adaptable**
Schemas can be well-defined or automatically adapt from data streams.
- **CEP**
Generate derived real-time data with aggregations, joins and unions.
- **Comprehensive**
Triggers, Timers, Procedures, Ejection Policies, Indexes, Constraints.
- **Standards compliant**
Standard SQL syntax, standard client JDBC Connector.
- **Multithreaded**
Multiple Queries can run simultaneously.

AMI Relay Features

A Custom Security focused Data Virtualization Layer.

- **Federated Data Base**
Link any number of data sources into a single virtual layer.
- **Cross-database Access**
Across, join and enrich data across data-sources in real-time.
- **ETL**
Extract, transform and upload data across data-sources of different types.
- **Secure**
Entitlements can be functional or based off user credentials.
- **Cloud Aware**
Support Name Discovery Services of dynamic/elastic anonymous data sources.

Extendable Plugins

Custom java plugins can be loaded into AMI's Java VM for custom features/functionality/security.

Security

- » **Single sign on**
Confirm username/password for dashboard access
- » **Entitlements**
Entitlements provide credentials dictating what the user can access/modify
- » **Secure Data Access Control**
Fine level control for authorizing at the user level what queries can be executed, data can be viewed and commands can be run.

Data Management

- » **External Data-Sources**
Connect to proprietary data-sources/databases
- » **Feed Handlers**
Connect to proprietary messaging protocols.
- » **Directory Naming Service**
Logical to physical addressing (ex: host/port) in real-time
- » **Triggers, Timers, Stored Procedures**
Java hooks invoked from the in memory database/CEP
- » **Persistence Engine**
Java hooks for data changes within the in-memory database.

GUI Extensions

- » **AmiScript/Java Adapter**
Provide custom java classes to be accessed via AmiScript.
- » **GUI Components**
Provide HTML/javascript GUI components to be rendered within dashboards.
- » **Source Code Management**
Connect to proprietary source code management services.

For more information, email info@3Forge.com.