# DETAILED DESIGN

## Hardware Detailed Design

The ARMT design is based on existing hardware architecture already deployed across the Atlantica Hotel enterprise. This hardware consists of the following components:

* ABC Quadrant Server Array consisting of  
  – 8GHz Server Suite  
  – RAM: 16 GB Fully Buffered  
  – Array Controller  
  – 4x 80GB 15,000 RPM Hard Drive  
  – 4x Giga Network Adapters
* Cisco CSS 11500 Content Services Switch series
* 4 TB SAN Storage Devices
* Dell P3000 Workstations

The ARMT solution leverages existing Atlantica hardware architecture and design. No additional hardware design is required for the ARMT.

## Software Detailed Design

The ARMT software design is recoded to provide customized functionality specific to the operations of Atlantica. It was determined through various analyses and studies that there is not an existing commercial-off-the-shelf (COTS) product with the ability to capture specific business operations unique to Atlantica. As such, detailed requirements were gathered from the legacy maintenance system’s user population and these requirements were used to develop the concept for the ARMT design. The concept was then broken down into modules in order to segregate and compartmentalize various functionality.

User Data Entry Module: Several partitions are coded into the User Data Entry Module depending on the type of maintenance transaction the user seeks to perform. These partitions help ensure users enter the appropriate sub-module (listed below) for their data entry activities.

* New System Data – This sub-module is coded to contain specific fields required for entering new assets/equipment into the database for the first time
* Existing System Data – This sub-module is coded to contain specific fields required for adding, removing, or editing data which already exists in database
* Customer Location Updates – This sub-module is coded to contain fields specific to geographic locations to include site, city, state, zip code, latitude, and longitude of every members. As assets/equipment are relocated, this sub-module allows users to update locations accordingly
* System History – This sub-module is coded to contain fields specific for reference past activities. Coding includes various search fields by location, serial number, part number,etc.

Automated Payment Reporting Module: This module includes coding which provides payment providers and customers with a selection of pre-built automated payment reports. The coding allows the user to select a date or booking number and uses this input to initiate a pre-built database query to pull the appropriate data from the data base in response to the user’s selection.

Manual Reporting Module: This module includes coding which provides users the ability to do the same function like the automated one, but with manual queries.

# EXTERNAL INTERFACES

## Interface Architecture

A screenshot of a computer

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Figure 1: Architecture Diagram

## Interface Detailed Design

For each system that provides information exchange with the system under development, there is a requirement for rules governing the interface. This section should provide enough detailed information about the interface requirements to correctly format, transmit, and/or receive data across the interface. Include the following information in the detailed design for each interface (as appropriate):

* The data format requirements; if there is a need to reformat data before they are transmitted or after incoming data is received, tools and/or methods for the reformat process should be defined
* Specifications for hand-shaking protocols between the two systems; include the content and format of the information to be included in the hand-shake messages, the timing for exchanging these messages, and the steps to be taken when errors are identified
* Format(s) for error reports exchanged between the systems; should address the disposition of error reports; for example, retained in a file, sent to a printer, flag/alarm sent to the operator, etc.
* Graphical representation of the connectivity between systems, showing the direction of data flow
* Query and response descriptions

If a formal Interface Control Document (ICD) exists for a given interface, the information can be copied, or the ICD can be referenced in this section.

# SYSTEM INTEGRITY CONTROLS

The ARMT tool design includes several security and integrity controls to ensure that the system and its data are always protected. This is done through a multi-tiered approach to ensuring data integrity is achieved through only authorized user functions and assignments.

The first design consideration is user authorization or permissions. All ARMT users will be assigned an authorization level and permissions within which they will operate. These users will be unable to perform any ARMT transactions outside of their assigned areas. Owner will decide authorization levels and operating boundaries for each of their assigned users.

The next design consideration is to establish control points. As the ARMT is a network tool, firewalls will be placed to partition the functions each group within Atlantica is able to perform within the ARMT. The purpose of this is to reinforce assigned work areas, permissions, and access with physical barriers to prevent any duplication, unintentional changes, or malicious changes of important data.

The ARMT design also incorporates an audit trail capability not available in the legacy system. This capability will allow Atlantica Hotel to track the history of all customers and their payments in order to provide history, error identification, and accountability for system users.

The next design consideration is data backup. The ARMT database will be backed up in accordance with Atlantica Security Policies and Guidelines dated Oct. 10, 2018. This will provide a fail-over capability to revert to in the event of a database corruption or system failure.

# SYSTEM components diagrams for functionalities

**View Payment Status**

A close up of a logo

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Figure 2. View Payment Status Use Case Diagram

![A screenshot of a cell phone

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Figure 3. View Payment Status Activity Diagram

![A screenshot of a computer

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Figure 4. View Payment Status Sequence Diagram

A picture containing text, map

Description automatically generated**View Payment Status**

Figure 5. Payment Provider View All Payments Use Case Diagram

A close up of a map

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Figure 6. Payment Provider View All Payments Activity Diagram

A screenshot of a social media post

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Figure 7. Payment Provider View All Payments Sequence Diagram

A close up of a map

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Figure 8. Hotel Owner Setting Up Restaurant Menu Use Case Diagram

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Figure 9. Hotel Owner Setting Up Restaurant Menu Sequence Diagram

A screenshot of a cell phone

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Figure 10. Hotel Owner Setting Up Restaurant Menu Activity Diagram