4.4.1 Functional Requirements Assessment

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Things to Consider When Designing Distributed systems

- **Note:** Because these are Functional Requirements, they need to be written specifically for the system being specified in the proposal or solicitation.

In DIDO, the following areas minimally cover Functional Requirements:

Hardware Architecture

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The goal of hardware functional requirements is to decide which hardware architectures are going to be supported and which, if any, will be left out.

- Which Platforms must be supported?
- Which Embedded Systems must be supported?
  - Which Standalone Subystems must be supported?
  - Which Standalone Systems must be supported?
  - Which Network Systems must be supported?
- Which servers must be supported?
  - Which software Servers must be supported?
  - Which hardware Servers must be supported?
- Which desktop computers must be supported?
- Which handheld computers must be supported?
- Which supercomputers must be supported?
- Which network computers must be supported?

Operating System

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Nodes on the distributed network must be designed specifically for the operating system that runs on the node. So the distributed system must support more than one operating system. But too many OSs can cause the support and maintenance of the system to be more difficult and costly.

- Which operating systems must be supported?

Network

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A distributed system is a collection of networked nodes, that run on networking equipment all connected using wireless or USB connections. Network functional requirements is to decide which platform, devices, and permissions are used throughout the system.

- Which network platforms must be supported?
- Which networking architectures must be supported?
- Which networking access must be supported?

RunTime Libraries

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RunTime functional requirements is to establish a RunTime Library that can communicate to with different operating/hardware platforms across the system.

- Which runtime environments must be supported?

Community/Development Tools

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Tool functional requirements include making sure your system has all the necessary development, management, and operation tools for the project.

- Which support tools must be supported?

Note: The tool list provided is not exhaustive.

Virtualized Nodes

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Utilizing Virtual Nodes in a distributed system can provide flexibility because a virtual node can run on many hardware/operating system platforms. Virtual Node functional requirements entail determining which type of virtual node is necessary for the system.

- Which types of virtualization nodes must be supported?

Data

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Every node based on its roles, manages and controls data. The data within the node is classified as either: ledger data, ancillary data, or external data. Regardless of the clas of data sotred on a node, it is often controlled by regulatons, Policies and Procedures.

- Are there Health Insurance Portability and Accountability Act (HIPAA) restrictions?
- Are there General Data Protection Regulation (GDPR) restriction?
- Are there Data Protection Act 2018 restrictions?
- Are there California Consumer Privacy Act (CCPA) restrictions?
- Are there data Retention Policy restrictions?