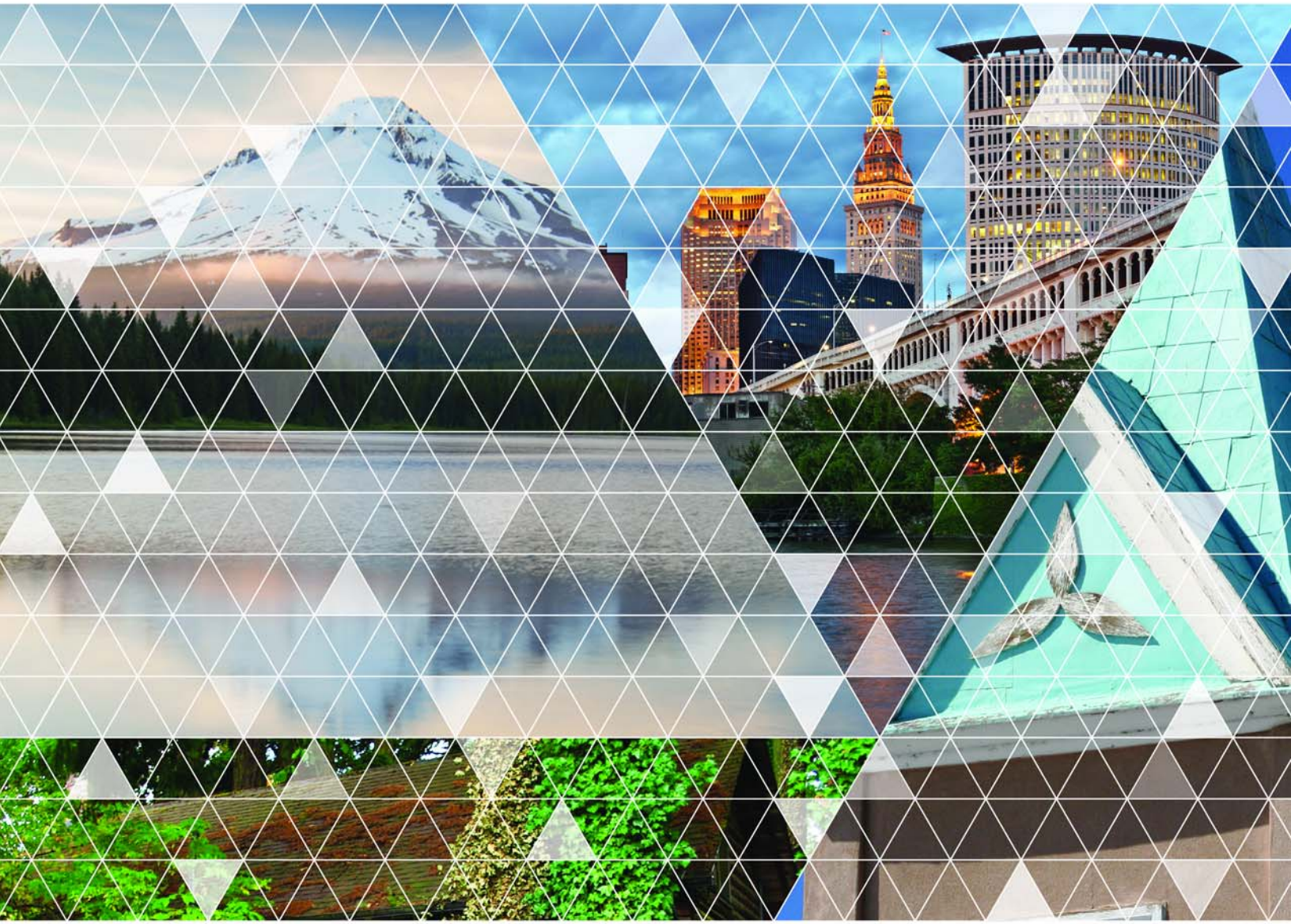
Version 9.1.0

Accela Civic Platform®

System Planning Guide



Accela

Accela Civic Platform System Planning Guide

Version 9.1.0
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Contents

Overview

This document provides general guidelines for planning an on-premise Accela system deployment. In addition to the following overview, this document includes a section that describes network topologies for small, medium, and large deployments, a section that documents nominal host machine requirements, and a section that documents host machine ports.

This chapter provides a high-level overview of software products comprising an Accela system.

Related Information

Solutions

Civic Platform

Add-on Products

Interfaces

On-Premise Solutions

The Accela system helps government agencies to automate their business processes, share information across departments, and communicate with office staff, field staff, the public, external businesses, and other key stakeholders.

The Accela system provides on-premise solutions for the following areas:

- **Land Management** - Automates, tracks, and manages land use activities. These activities include permit request processing, plan reviews, inspections, investigations, fee calculations and fee collections, signoffs, permit issuance, and so forth. The Land Management solution enables agency staff to access data that public users enter, verify activities, check permit status, and obtain complete parcel information from a centralized database.
- **Licensing and Case Management** - Automates the business process for license applications, registration, and renewals. The solution tracks the fees, exams, continuing education, and approvals associated with each license type.
- **Asset Management** - Tracks and manages assets, work orders, and agency resources. The solution automates asset costing, inventory, maintenance, investigations, and inspections. The solution manages all agency assets, including fleet, street, water, wastewater, parks and recreation, plant and facilities, sewer, railway, roadway, and so forth.
- **Service Request** - Automates and manages interdepartmental or citizen requests for service, complaints, or inquiries. The solution organizes and manages requests, to improve citizen interaction.

For information about other Accela products and solutions, see http://www.accela.com/solutions.

Civic Platform

Civic Platform provides the core functionality for the system. The Civic Platform web server receives instructions to construct and deliver web pages to a Civic Platform browser-based client, and provides information from the browser-based client to the application server for processing. The ColdFusion MX web server provides the user interface environment for the Civic Platform Classic administrative tool.

The application (biz) server executes the main functionality of Civic Platform. The application server retrieves and writes record content to the database, and works with the web server to send and receive information to and from the client. The application server processes requests from other system products.

The system stores all Civic Platform record content in the Civic Platform database, except for attachments. The system stores attachments (documents) via the Accela Document Services (ADS) or third party Enterprise Document Management System. The ADS server provides access to stored documents. The ADS server uses a different database schema from the Civic Platform database, but the ADS database can be shared with the Civic Platform database server.

The index server performs global full-text searches across all Civic Platform records. Without the index server, Civic Platform can perform exact match searches and wildcard searches for record metadata.

The Accela Adhoc Reports server provides the ability to design and generate custom reports of data stored in the Civic Platform database.

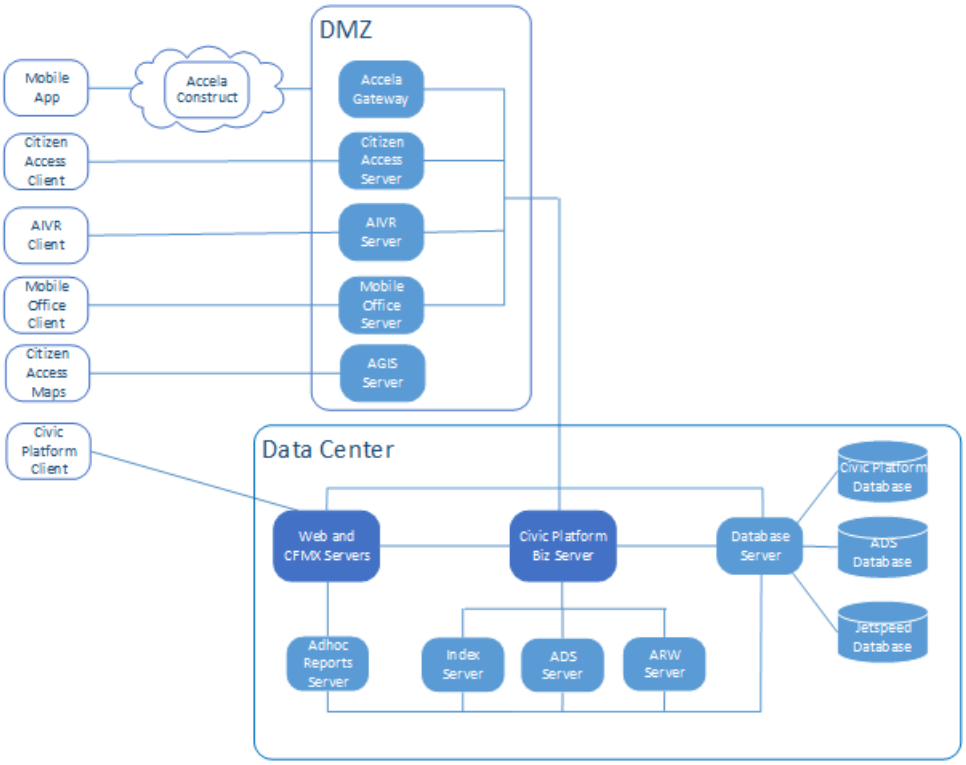

Figure 1: Accela System Functional Diagram

Notes:

- Add-on products use a different deployment topology for the client. See the deployment topologies illustrated in the Network Topology chapter.
- The map component in Citizen Access, Mobile Office, and Civic Platform clients connects to AGIS Server.

Add-on Products

Topics

Accela Citizen Access

Accela Citizen Access (or "Citizen Access") provides a web based and mobile phone based interface that works with Civic Platform applications and databases to provide citizens with online access to government services and information. The Citizen Access server constructs and delivers web pages to the Citizen Access client and provides information from the client to the Civic Platform application server for processing.

Accela Mobile Office

Accela Mobile Office (or "Mobile Office") runs on mobile Windows devices such as tablet PCs and laptops using the Microsoft .NET Framework . Mobile Office provides field access for activities such as inspections, investigations, disaster response, code enforcement, work orders, and service requests. The Mobile Office client uses Windows Communication Foundation (WCF) to communicate with the Mobile Office server.

The Mobile Office server receives requests from the Mobile Office client, transforms the requests into GovXML format, then submits the GovXML requests to the Civic Platform application server. The Mobile Office server receives GovXML responses from the Civic Platform application server, transforms these responses into a format for the Mobile Office client device, and submits these transformed responses to the Mobile Office client.

The Mobile Office server supports multiple users and multiple agencies at the same time. The Mobile Office server uses a local database (Oracle or MS SQL Server) for storing configuration values, such as the location of multiple application servers.

Accela IVR

Accela IVR (Interactive Voice Response) provides a voice response interface to execute Civic Platform business processes. Accela IVR includes recognition of selected voice inputs and keypad inputs from a touch tone telephone. Accela IVR responds with text-to-speech, custom text-to-speech, or custom audio file voice prompts and voice messages .

The Accela IVR server provides a web interface to administer the Accela IVR. The Accela IVR server integrates a third-party voice system (Aspect/Voxeo Prophecy IVR) with a Civic Platform application server to deliver two-way voice messaging with end users through their phone. The Accela application server to processes requests from the Accela IVR server and provides responses to the Accela IVR server.

Accela Mobile Apps, Mobile Cloud Server, and Mobile Gateway

Accela provides five apps that run on smartphones and tablets.

- Accela Civic Hero
- Accela Analytics
- Accela Code Officer
- Accela Inspector
- Accela Work Crew

The Accela apps access a subset of core Civic Platform functionality that Accela targets for specific business needs. Accela apps interface with the Civic Platform platform through the Accela Cloud Server and Accela Mobile Gateway. The Accela Cloud Server hosts a website for administering and creating mobile apps, and provides limited functionality for processing public user requests. The Civic Platform platform processes most of the requests from the Accela mobile apps. The Accela Mobile Gateway provides proxy functionality for requests and responses to and from the Civic Platform platform.

Accela GIS

Accela GIS (Geographic Information System) leverages geospatial data to provide a geographic view of all land-use, zoning, and infrastructure information associated with agency records, such as parcels, permits, inspections, plans, assets, work orders, and service requests. Users access Accela GIS maps through other system clients (Civic Platform, Citizen Access, and Mobile Office). The Civic Platform application server processes map requests from the system clients and delivers map data from the GIS server to the system clients.

Interfaces

Accela client products and third-party products integrate with the Civic Platform application server through the Accela GovXML API, the Accela REST API, one of many provided web services, or a pre-built adapter. Civic Platform Interfaces illustrates these interfaces. GovXML uses an XML based request and response paradigm, and an HTTP based service, that communicates with the Civic Platform application server. Accela external web services use a standard request/response web service architecture. The web and CFMX servers also invoke Enterprise Java Beans (EJBs) on the Civic Platform application server.

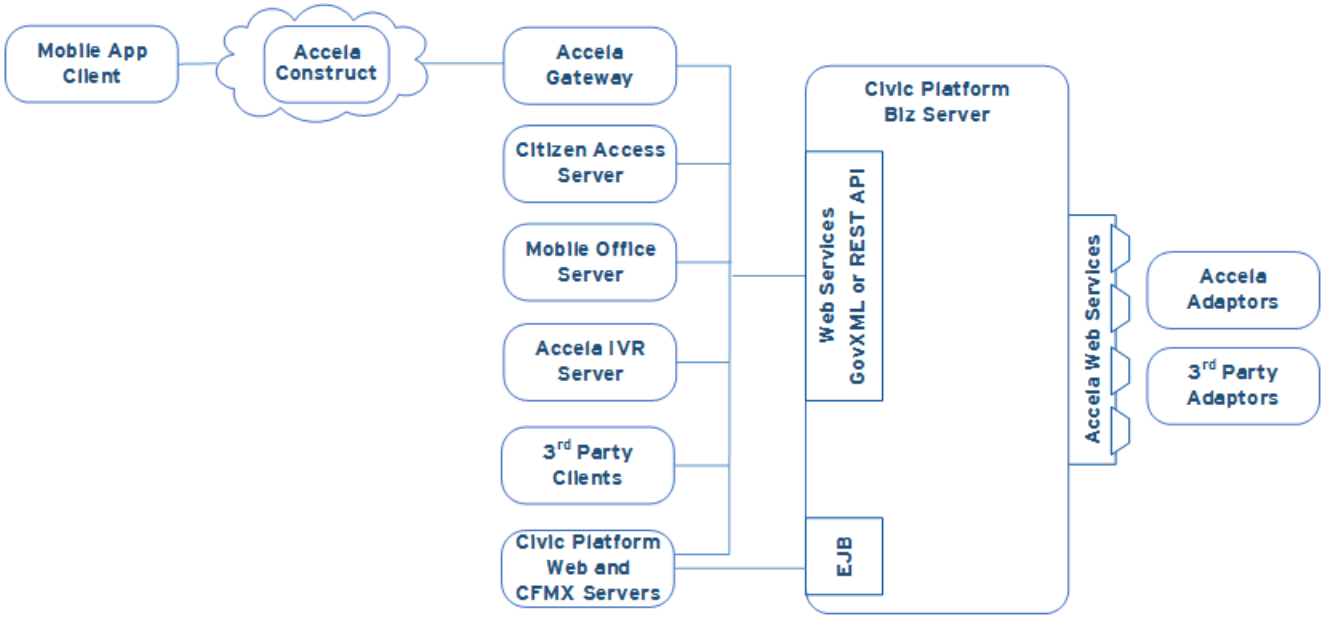

Figure 2: Civic Platform Interfaces

Network Topology

The number of concurrent Civic Platform users provides the single best criterion that predicts system load (number of transactions, searches, and so forth). This section provides sample topologies for small (less than 50), medium (50 to 200) and large (more than 200) numbers of Civic Platform users.

Note:

Transactions that originate from public users (Citizen Access or Accela Mobile apps users) create the same load on the Civic Platform back end as similar transactions that originate from Civic Platform users.

Related Information

Small Size Sample Topology

Medium Size Sample Topology

Large Size Sample Topology

Small Size Sample Topology

The Small-size Deployment Topology diagram shows a sample consolidated deployment for agencies with less than 50 named users. In this configuration, the Citizen Access server, Accela Gateway, Mobile Office server, and Accela IVR server reside on a single host in the DMZ. The Civic Platform application server and web server reside on the same host. An additional Civic Platform application server handles request load and response load from the DMZ-hosted servers.

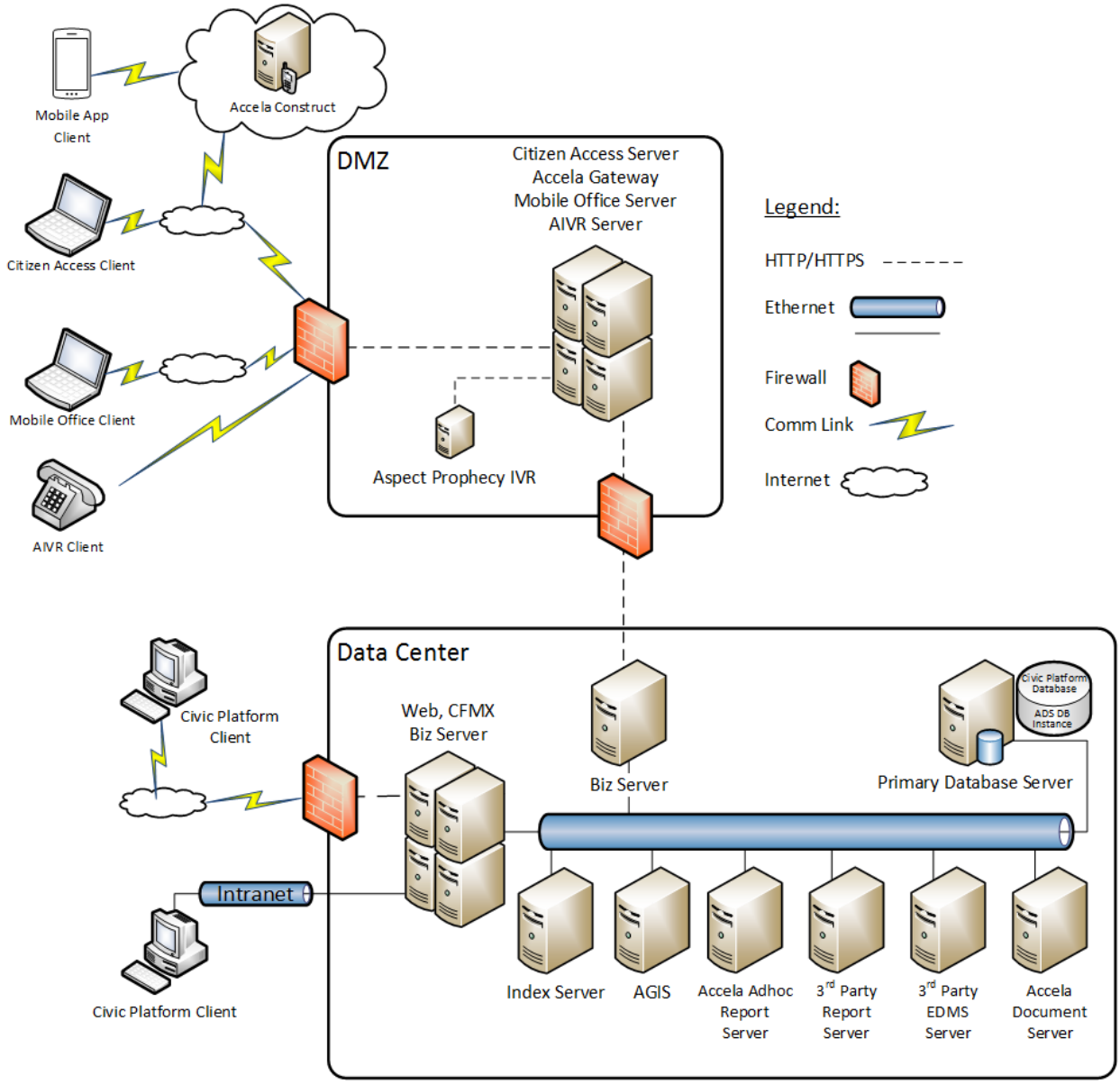

Figure 3: Small Deployment

Small-size deployment guidelines

- If the agency intends to provide map services to Citizen Access users, the Accela GIS Server must be deployed in the same DMZ with the Citizen Access Server for better performance. Otherwise, the Accela GIS Server can be deployed in the Data Center along with the Civic Platform and GIS server back-end components as shown in the topology diagram.
- If the agency intends to provide map services to Mobile Office users, the Accela GIS Server must be deployed in the same DMZ with the Mobile Office Server for better performance. Otherwise, the Accela GIS Server can be deployed in the Data Center along with the Civic Platform and GIS server back-end components as shown in the topology diagram.
- If the agency uses the Accela Document Server, it requires its own database instance while the Accela Adhoc Report Server uses the Civic Platform database instance. The ADS database instance can be on its own database server, or shared with the Civic Platform database server (as shown in the diagram). You can consolidate these optional components on one or more physical (or virtual) hosts, depending on the requirements of your deployment.
- There should only be one index server, as shown in the topology diagram.
- The general recommendation is to deploy components such as Accela Document Server and Accela Adhoc Report Server on separate servers. If the agency decides to combine components with other servers, make sure that they are not combined with the Biz and Index servers, and that the host server has capacity for anticipated transaction data load.
- The AGIS JavaScript service needs to reach the internet to retrieve ArcGIS Online services.
- ESRI ArcGIS services need to be public facing in order for agency maps to be leveraged by the Mobile App clients.
- For sizing recommendations, see Sizing JVM Process Memory Recommendations for Data Center Servers.

Medium Size Sample Topology

The Medium-size Deployment Topology diagram shows a sample typical deployment for agencies with between 50 and 200 named users. This topology partitions the increased load from the additional users of add-on products to two different hosts.

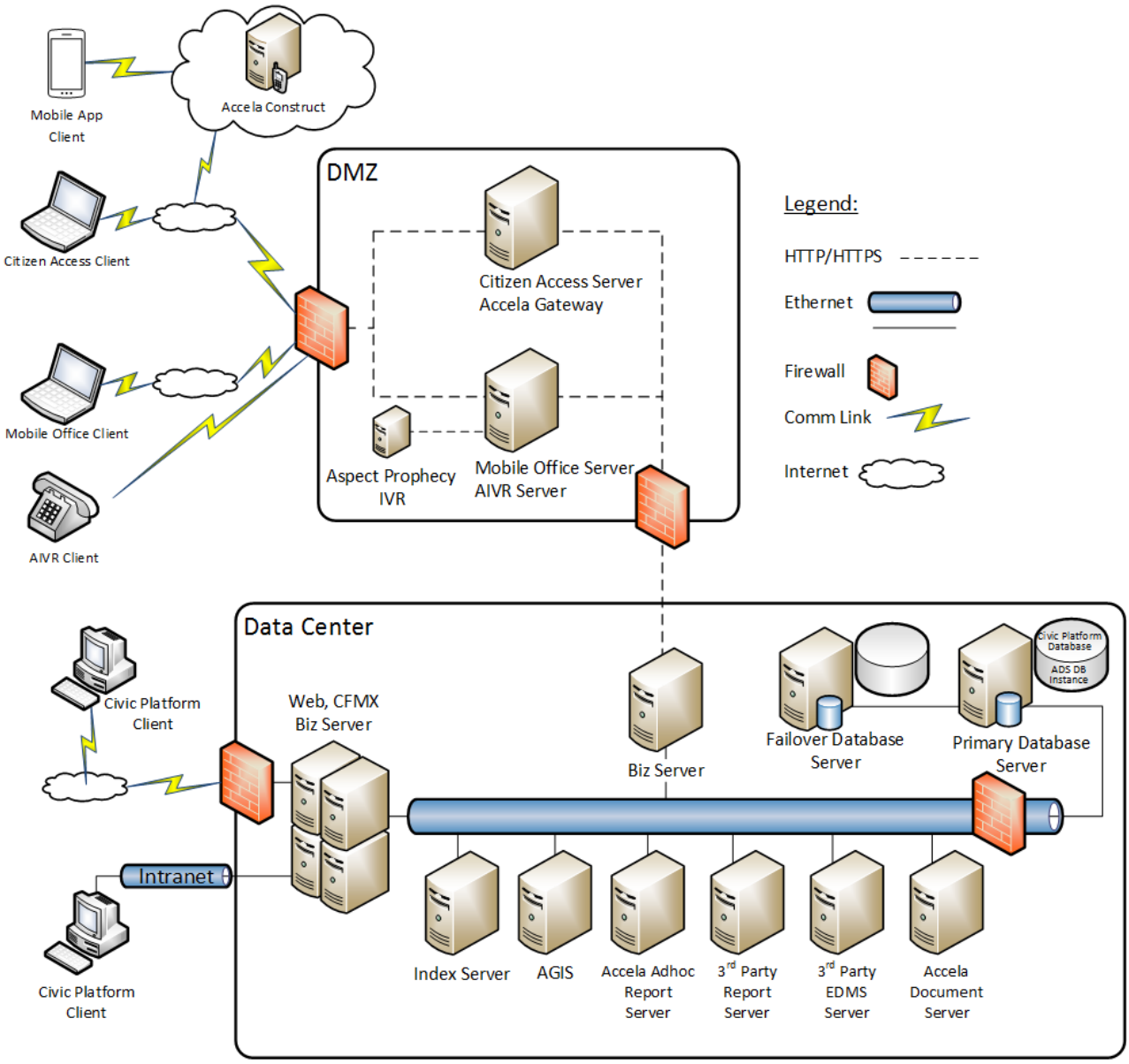

Figure 4: Medium Size Deployment Topology

Medium-size deployment guidelines

- If the agency intends to provide map services to Citizen Access users, the Accela GIS Server must be deployed in the same DMZ with the Citizen Access Server for better performance. Otherwise, the Accela GIS Server can be deployed in the Data Center along with the Civic Platform and GIS server back-end components as shown in the topology diagram.
- If the agency intends to provide map services to Mobile Office users, the Accela GIS Server must be deployed in the same DMZ with the Mobile Office Server for better performance. Otherwise, the Accela GIS Server can be deployed in the Data Center along with the Civic Platform and GIS server back-end components as shown in the topology diagram.
- For a medium-size agency, use a separate host for the Citizen Access server and Accela Gateway, and a separate host for the Mobile Office server and Accela IVR server as shown in the topology diagram.
- If the agency uses the Accela Document Server, it requires its own database instance while the Accela Adhoc Report Server uses the Civic Platform database instance. The ADS database instance can be on its own database server, or shared with the Civic Platform database server (as shown in the diagram). You can consolidate these optional components on one or more physical (or virtual) hosts, depending on the requirements of your deployment.
- There should only be one index server, as shown in the topology diagram.
- The general recommendation is to deploy components such as Accela Document Server and Accela Adhoc Report Server on separate servers. If the agency decides to combine components with other servers, make sure that they are not combined with the Biz and Index servers, and that the host server has capacity for anticipated transaction data load.
- For medium sized deployments, implement failover at the database level.
- The AGIS JavaScript service needs to reach the internet to retrieve ArcGIS Online services.
- ESRI ArcGIS services need to be public facing in order for agency maps to be leveraged by the Mobile App clients.
- For sizing recommendations, see Sizing JVM Process Memory Recommendations for Data Center Servers.

Large Size Sample Topology

The Large-size Deployment Topology diagram below shows a sample deployment topology for agencies with more than 200 named users. For a large on-premise deployment, use a separate application server host to handle requests and responses that come from the additional users of add-on products and each of the two hosts in the DMZ.

The diagram below shows the optional components on separate physical hosts for clarity only. You can partition your data center network into zones, depending on your business requirements.

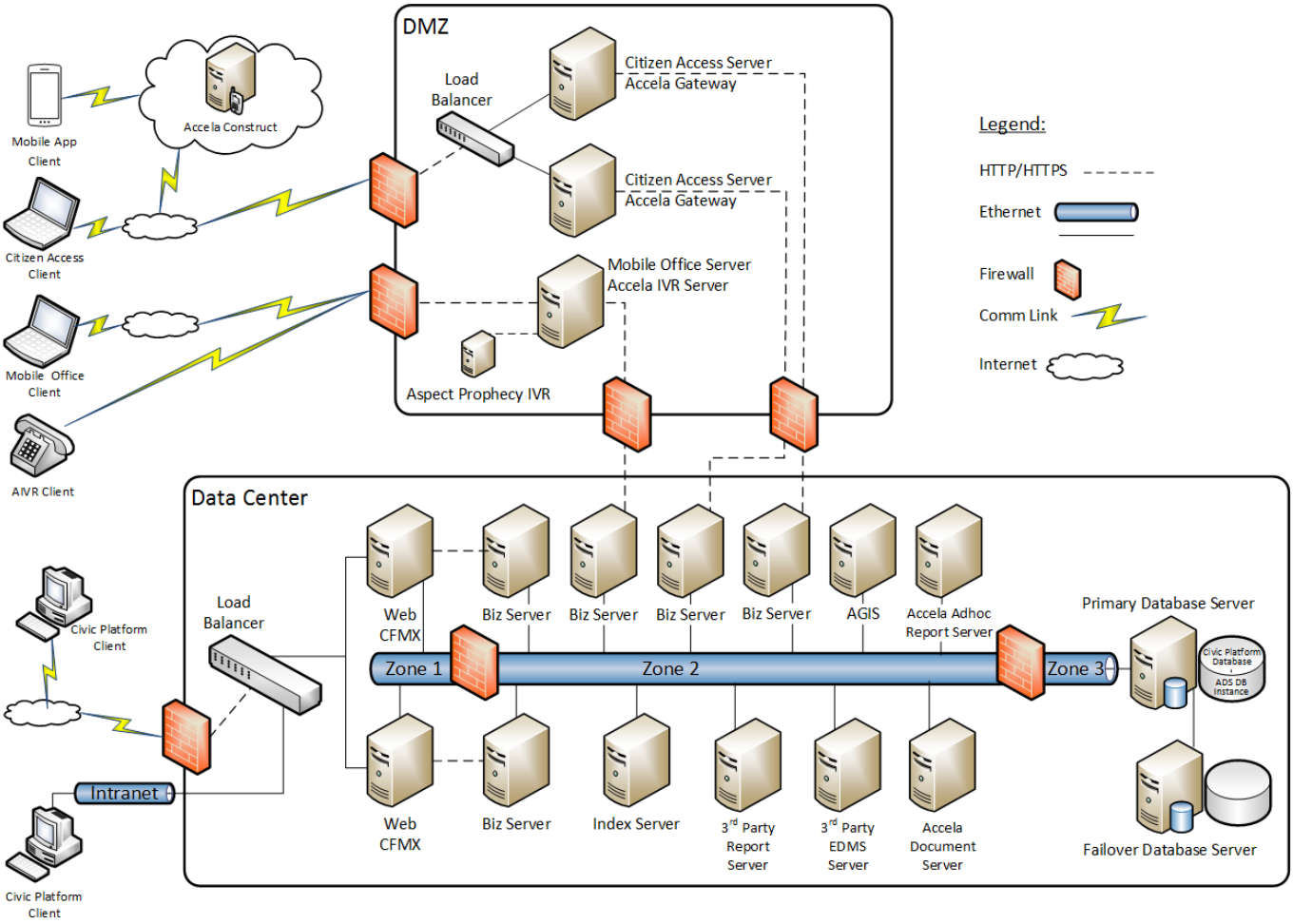

Figure 5: Large Size Deployment Topology

Large-size deployment guidelines

- To handle the increased load from Civic Platform users, use a load balancer with duplicate hosts for the Civic Platform application and web server. You can also use two different hosts for the Civic Platform web server and application server for each of the load-balanced pathways.
- If a large agency needs to support increased usage of Citizen Access, you can deploy a load balancer for multiple Citizen Access servers that can connect to multiple Biz servers as shown in the topology diagram.

- If the agency intends to provide map services to Citizen Access users, the Accela GIS Server must be deployed in the same DMZ with the Citizen Access Server for better performance. Otherwise, the Accela GIS Server can be deployed in the Data Center along with the Civic Platform and GIS server back-end components as shown in the topology diagram.
- If the agency intends to provide map services to Mobile Office users, the Accela GIS Server must be deployed in the same DMZ with the Mobile Office Server for better performance. Otherwise, the Accela GIS Server can be deployed in the Data Center along with the Civic Platform and GIS server back-end components as shown in the topology diagram.
- If the agency uses the Accela Document Server, it requires its own database instance while the Accela Adhoc Report Server uses the Civic Platform database instance. The ADS database instance can be on its own database server, or shared with the Civic Platform database server (as shown in the diagram). You can consolidate these optional components on one or more physical (or virtual) hosts, depending on the requirements of your deployment.
- There should only be one index server, as shown in the topology diagram.
- The general recommendation is to deploy components such as Accela Document Server and Accela Adhoc Report Server on separate servers. If the agency decides to combine components with other servers, make sure that they are not combined with the Biz and Index servers, and that the host server has capacity for anticipated transaction data load.
- For large sized deployments, implement failover at the database level.
- The AGIS JavaScript service needs to reach the internet to retrieve ArcGIS Online services.
- ESRI ArcGIS services need to be public facing in order for agency maps to be leveraged by the Mobile App clients.
- For sizing recommendations, see Sizing JVM Process Memory Recommendations for Data Center Servers.

Host Requirements

Hardware and Software Requirements

The latest Civic Platform hardware requirements, supported operating systems, and supported third-party products are published on *Accela Success Community > Civic Platform Release Notes > Supported Environments*.

Sizing JVM Process Memory Recommendations for Data Center Servers

The Civic Platform installer includes default settings for the initial and maximum Java heap size in the wrapper.conf configuration file. Adjust the default values as appropriate, according to the Java memory recommendations listed in this section. Do not allocate more memory to the JVMs than half the physical server memory. Allocate process memory for each Civic Platform service as shown below. Scale up the system by adding additional servers with load balancers.

Recommended Java Memory Settings for 64-bit Servers:

Table 1: Small-size Agency (less than 50 named users)

Service	Recommended Memory Range
Biz Server	4096
Web Server	4096
cfmx	4096
Indexer	4096
ADS	4096

Table 2: Medium-size Agency (50-200 named users)

Service	Recommended Memory Range
Biz Server	6144
Web Server	6144
cfmx	4096
Indexer	6144
ADS	6144

Table 3: Large-size Agency (more than 200 named users)

Service	Recommended Memory Range
Biz Server	8192
Web Server	8192
cfmx	4096
Indexer	8192
ADS	8192

Network Ports

Civic Platform implements standard web communication protocols (HTTP/HTTPS, SSL, and so forth). Use the commonly available communication speed, 1 Gbps for example, for your network communication speed.

The following **Civic Platform Configuration Parameters** table shows the network communication ports between external Accela hosts. The administrator who installs Civic Platform uses the same configuration checklist (included in the Civic Platform Installation Guide) before running the Civic Platform installer.

Table 4: Civic Platform Component Configuration Parameters

Component	Parameter: (with Example Values)	Your Value
General Recommendation	Have a total of approximately 6 IP addresses available. **Note:** The actual total of IP addresses depends on whether the Accela core services are installed on separate servers or a multi-homed server.	
ColdFusion MX Web Server	• Host: aa.Accela-product.accela.com • IP address: 10.50.2.1 • HTTP port number: 80 • HTTPS port number: 443 • JBoss port bind base: 2 • SSO cookie domain: .accela.com • SMTP mail server: 10.50.1.23 • SMTP mail server port number: 25	• • • • • • • •
Web Server	• Host: av.accela-product.accela.com • IP address: 10.50.2.2 • HTTP port number: 80 • HTTPS port number: 443 • JBoss port bind base: 4	• • • • •
Application Server	• IP address: 10.50.2.3 • JBoss port bind base: 3 (preset) • SMTP user name: authuser • SMTP user password: password	• • • •
Index Server	• IP address: 10.50.2.4 • JBoss bind port base: 6	• •

Component	Parameter: (with Example Values)	Your Value
ARW Server	• Host name: reporting.Accela-product.accela.com • IP address: 10.50.2.4 • HTTP port number: 80 • JBoss port bind base: 9	•
ARW Server with Oracle Database	• DB TNS name: reporting • DB username: reportUser • DB login password: reportUser • DB IP address: 10.50.0.26 • DB port number: 1521 • DB SID: reporting	•
ARW Server with MS SQL Server Database	• DB ODBC name: reporting • DB login username: reportUser • DB login password: reportUser • DB server: reporting_sqlserver • DB port number: 1433 • Database name: reporting	•
Oracle Database Server	• IP address: 10.50.0.31 • Port number: 1521 • Service name: dermdb.accela.com • DB SID: dermdb • SYS username: sys • SYS password: sys • Regular DB login username: accela • Regular DB login password: accela • Adhoc report DB login username: adhocaccela • Adhoc report DB login password: adhocaccela • Oracle default table space name: ACCELATBS • Oracle temporary table space name: TEMP	•

Component	Parameter: (with Example Values)	Your Value
Jetspeed Oracle Database Server	• IP address: 10.50.0.31	•
	• Port number: 1521	•
	• Service name: dermdb	•
	• SYS username: sys	•
	• SYS password: sys	•
	• Regular username: jetspeed	•
	• Regular password: jetspeed	•
	• Default table space name: JETSPEEDTBS	•
	• Temporary table space name: TEMP	•
MS SQL Server Database Server	• IP address: 10.50.0.85 (or 10.50.0.85\Accela)	•
	• Port number: 1433	•
	• Database name: accela	•
	• Admin DB login username: admin	•
	• Admin DB login password: admin	•
	• Regular DB login username: accela	•
	• Regular DB login password: accela	•
	• Adhoc report DB login username: adhocaccela	•
	• Adhoc report DB Login password: adhocaccela	•
ADS Server	• IP address: 10.50.2.7	•
	• HTTP port: 80	•
	• JBoss bind port base: 7	•
ADS Server with Oracle Database	• DB IP address: 10.50.0.26	•
	• DB port number: 1521	•
	• Service name: proj1	•
	• DB username: ads	•
	• DB login password: adspw	•

Component	Parameter: (with Example Values)	Your Value
ADS Server with MS SQL Server Database	• IP address: 10.50.0.35 • Port: 1433 • Database name: ADS • User name: vchtrans • Password: vchtrans	• • • • •

Note the following:

- **For the ColdFusion MX web server, Web Server, Index server, and ADS server** - The Port Bind Base is the base number for all other ports except HTTP and HTTPS ports. The value should typically be a single-digit or double-digit between 1~65 (such as 2, 3, etc.), and becomes the 'thousands' prefix for all other pre-defined values. The 'Port Bind Base' concept applies to the setup of other Accela products. Each Accela product if installed on the same server should have a unique base.
- **For the Web server and Report server** - If the server is on the same host as the application server, they have the same IP address, use a different HTTP port number and HTTPS port number from the ones used for the application server (Setting Up Multiple-Homed Servers).
- **For the Application server** - Application server clients specify port 3080 as the default port for communicating with the application server. Reserve JBoss binding port base 3 for the application server.
- **For the Accela IVR server** - Use unique port numbers for multiple Tomcat instances.
- **For the Accela Gateway server** - Accela Mobile Gateway can support multiple application servers. Each supported application server uses a different IP address or port.

The following **Internal Communication Ports** table lists internal communication ports between the Civic Platform application server and other system servers.

Table 5: Internal Communication Ports

Ports	Servers
<base>080	Biz, CFMX, Web, ADS servers (for http)
<base>443	Biz, CFMX, Web, ADS servers (for https)
<base>445	Biz, Index servers (for Java Messaging Service)
<base>447	Biz, Index servers (for Java Remote Method Invocation)
<base>099	Biz, Index server, CFMX, Web, ADS servers (for Java Naming Provider)

Setting Up Multiple-Homed Servers

Best practices prescribe installing Civic Platform using a multi-homed configuration. Multi-homed describes a computer host that has multiple IP addresses to connected networks. You configure physical connection between a multi-homed host to multiple data links that can be on the same or different networks.

If you install multiple Accela products on a single physical server, the recommended configuration is to set up a multi-homed environment on that server. IT professionals accomplish this by setting up multiple virtual IP addresses. Each Accela service requires a unique TCP/IPv4 address.

Database Guidelines

Planning the Database Installation

Civic Platform requires an Oracle or MS SQL database server and database.

- Refer to the database vendor documentation to set up your database, and follow the database vendor's recommendations to ensure proper database installation.
- Check the network connections and driver connections. The database ports and connection parameters are listed in Network Ports.
- Refer to *Accela Success Community > Civic Platform Release Notes > Supported Environments* for supported database versions.
- For multi-language (I8LN) support, ensure that the database supports unicode.

The following are database planning guidelines respective to your database server:

Oracle

- When planning for your Oracle installation, Accela recommends that a dedicated Oracle instance should be allocated for Accela usage.
- Allocate a database size that accommodates the sum of your agency's historical converted data plus anticipated usage growth over a number of years. The anticipated usage growth is generally a factor of 20 KB per record times the number of records annually (where a record is an application record and all of its metadata). Note that the 25 KB per record guideline does not include the size of the electronic documents, which are typically stored outside the Accela database.

MS SQL Server

- Create a user account with SYSADMIN role and specify the user's default database as the master.
- Allocate a database size that accommodates the sum of your agency's historical converted data plus anticipated usage growth over a number of years. The anticipated usage growth is generally a factor of 20 KB per record times the number of records annually (where a record is an application record and all of its metadata). Note that the 25 KB per record guideline does not include the size of the electronic documents, which are typically stored outside the Accela database.