Security principals:

1. Building Services to Protect Data

1.1 Firewall - 2 levels security:

a. Cloud infrastructure firewall rules - Microsoft Azure Active Directory (SAML2.0,WS-Federation)

b. Azure SQL Database server level firewall rules ( To help protect your data, firewalls prevent all

Access to EllieMae database server until you specify which computers have permission.

The firewall grants access to databases based on the originating IP address of each request.)

1.2 Logically segment subnets - will create a single private IP address space-based network on

Which EllieMae can place all Azure Virtual Machines

1.3 Deploy DMZs for security zoning - will help enable DDoS prevention, Intrusion Detection/Intrusion

Prevention systems (IDS/IPS),

Firewall rules and policies, web filtering, network antimalware

2. Protecting Data in Service Operations:

2.1 Security groups

2.2 Access Control List - data access controls

2.3 SSL data transfer

3. Protecting Data at rest:

3.1 availability, redundant and disaster recovery: Enable data replication in multiple regions (Regional Pair - US West, US West 2)

3.2 data encryption (Azure Key Vault)

Audit principals

1 Audit activities: enable audit logs - control operations

EllieMae resources (includes logs such as creation of VMs, starting websites, dropping database,

Success and failure of deployments and etc.)

2. SQL database auditing - tracks database events (define categories of database actions to be audited)

And writes them to an audit log in EllieMae Azure storage account.

Performance and Scalability principals:

1. Use built-in auto scaling features - scale out on a schedule. For example, scale out during business hours

2. Avoid instance stickiness - Stickiness, or session affinity, is when requests from the same client are always routed to the same server.

Stickiness limits the application's ability to scale out

3. Parallel and asynchronous processing loading/refining data

4. Sharding - Divide a data store into a set of horizontal partitions or shards