

## INKY Services

INKY Services are hosted on AWS infrastructure.

- INKY Phish Fence
- INKY Encryption
- INKY Analytics / Reporting / Configuration
- INKY Link Analysis

### High Risk Services (Less than three region redundancy.)

INKY's database is a single master multi read replica configuration. Read Replicas are hosted in each active INKY AWS region. The master is hosted in AWS Region US-East-1 in a multi-availability zone deployment.

INKY has identified this as the largest design single point of failure in the current architecture design. Future plans will look to incorporate a MultiMaster design and currently the bulk of recovery planning centers on mitigations of this component.

INKY is able to be removed from mail flow by the client in the event of a significant outage allowing customers to restore mail flow.

---

### Scenario: Region hosting the INKY database write master becomes unavailable.

RTO - 3 hours

RPO - < 30 minutes (Replication Lag time should be = to average replication lag)

#### AFFECT TO SERVICES:

**INKYPhishFence - UNAFFECTED**

- Mail Processing does not require write access to the INKY database.

**INKYEncryption - UNAFFECTED**

- The INKY Encryption service does not access the INKY database

**INKY Analytics / Reporting / Configuration - DEGRADED / DEGRADED / DISRUPTED**

- INKY dashboard services will be unable to incorporate new results until a write master database is available.

- Mail reported to the INKY service will not be reflected in results or analytics until a write master database is available.
- Configuration changes are not possible while the write master database is unavailable.

### RECOVERY OUTLINE

- Identify unaffected region for new write master
- Create Snapshot of a current read replica in that region
- Launch that snapshot as a new write master database
- Update DNS to point to the new write master database
- Ensure that replication has resumed on read replicas

---

## Scenario: Failure of a region hosting non-master database

RTO - 0

RPO - 0

### AFFECT TO SERVICES:

#### INKYPhishFence - UNAFFECTED

- Mail Processing does not require write access to the INKY database.

#### INKYEncryption - UNAFFECTED

- The INKY Encryption service does not access the INKY database

#### INKY Analytics / Reporting / Configuration - UNAFFECTED

- INKY Analytics servers will be available in remaining regions
- Reporting services will be available in remaining regions
- Configuration services will be available in remaining regions

### RECOVERY OUTLINE

- If outage is expected to be under 24 hours INKY operations will ensure all remaining regions have sufficient capacity.
- If outage is expected to exceed 24 hours a new available AWS region will be provisioned.
  - o INKY utilizes Amazon Machine Images for all production systems. As a result, it is a straightforward process to bring additional regions on-line in the event of catastrophic failure
  - o This process while straightforward will take approximately 24 hours to complete as new services will need to be warmed up and new IPs registered.

### Scenario: Failure of all regions hosting INKY services

RTO - \*

RPO - \*

#### AFFECT TO SERVICES:

##### INKYPhishFence - UNAVAILABLE

- All Services down

##### INKYEncryption - UNAVAILABLE

- All Services down

##### INKY Analytics / Reporting / Configuration - UNAVAILABLE

- All Services down
- All Services down
- All Services down

#### RECOVERY OUTLINE

- INKY will provision a new AWS region as quickly as possible
  - o INKY utilizes Amazon Machine Images for all production systems. As a result, it is a straightforward process to bring additional regions on-line in the event of catastrophic failure
- INKY Operations will identify if there is an alternate AWS region available to host INKY services.
- If no AWS region is available INKY services can be rebuilt onto alternate cloud services.
  - o INKY Code / development and operations repositories are fully independent of AWS infrastructure.
  - o INKY can rebuild all existing services on alternate cloud services platforms.