CDR - CloudLink Application and DB Migration

Purpose

Define technical specifications and provide cost estimation for approval.

Audience

- Architects
- Infrastructure
- Application Team

Context and Problem Statement

The **Cloud Link (APM0067435)** is a bespoke application for URL shortener services designed specifically for Sanofi's internal users. It operates in both production and development environments, ensuring flexibility and reliability. Users can easily access the application for URL shortening by visiting Cloudlink.sanofi.com which is hosted on **Windows 2012 servers (XSPW11F010W, XSPW11F011B)**. Short URLs created by Cloudlink.sanofi.com are redirected using Surl.sanofi.com, hosted on a **Red Hat 9.3 server (XSPL70S322A)** on **AWS** in **DMZ**.Cloudlink.sanofi.com hosted on-prem for Sanofi's internal users (Intranet) -to create shorten URL and surl.sanofi.com hosted on EC2 instance in AWS cloud for routing/redirect url (Internet).

Decisions

Decision 1: AWS Account

Option 1: Deploy application components in the shared-workloads AWS account (Unfiltered).

Option 2: Deploy application components in a dedicated workload AWS account (Filtered).

Option 3: Deploy application components in a dedicated workload AWS account (Unfiltered).

Option 4: Deploy application components in dedicated Cloud Blue Zone (Filtered).

Option 5: Deploy database components in shared Cloud Blue Zone (Filtered).

Option 6: Deploy the application in the AWS SCAle OpenShift container platform (Filtered/DMZ).

Option 7: Deploy the application in the AWS SCAle OpenShift container platform (Unfiltered).

Option 8: Deploy the application in a shared storage AWS account (Unfiltered).

Option 9: Deploy the application and database components in exiting dedicated workload AWS account (Filtered).

> **Option 9**

> AWS exiting filtered workload account used for cloudLink application.

> AWS exiting filtered workload account used for Database.

Decision 2: Server (Application)

- Option 1: Lift & Shift
- Option 2: Re-Install/Re-Platform
- Option 3: New install

> **Option 2**

> This CDR focuses Re-platform / hosting the Intranet Cloud Link application on exiting EC2 instance on AWS platform.

Decision 3: Database

- Option 1: Dedicated database PaaS - Amazon RDS - Managed Relational Database Service i.e. MySQL, PostgreSQL, Oracle, MariaDB or SQL Server and DynamoDB - Managed Non-Relational Database Service.
- Option 2: Dedicated database host or Instance (e.g. MySQL, PostgreSQL).
- Option 3: Use the existing database (On premise / NGDC / Cloud).
- Option 4: Use existing or new EC2 instance to host database.
- Option 5: No Database

> **Option 1**

> Amazon RDS MySQL (Migrate from NGDC MySQL to Amazon RDS MySQL)

> Dedicated database on Amazon RDS MySQL. This option was selected based on its ability to meet performance, scalability, and compliance requirements.

Decision 4: Backup

- Option 1: Automated AWS Backup.
- Option 2: Manual Backup.
- Option 3: Commvault (On Premise Backup Solution)

> **Option 1**

> We are opting for automated scheduled backups.

Decision drivers

- The **Cloud Link** application which uses an **Windows 2012 R2 server** and **MySql 5.x** database which currently outdated and non-complaint as per Sanofi standards. Based on the obsolescence this needs to be moved to new cloud-based architecture and design approaches need to be devised to keep pace with the Sanofi Technology standards. To meet the evolving demands of the modern technology stack, the application needs to be upgraded with the latest set of components (OS Upgrade) that are compliant with Sanofi standards.

- The application hosted on **XSPW11F010W - Windows 2012 R2** server in **AMER NGDC** need of an upgrade to the latest operating system**.**

- The application hosted on **XSPW11F011B - Windows 2012 R2** server in **AMER NGDC** need of an upgrade to the latest operating system**.**

- **MySQL Server@XSPW11F010W (MySQL 5.7.10) installed in XSPW11F010W** require an upgrade to **MySQL 8.0.**

- **MySQL Server@XSPW11F011B (MySQL 5.6.21)** installed in **XSPW11F011B** require an upgrade to **MySQL 8.0.**

- The application is hosted on the **Apache servers 2.4.10 and 2.4.16**, as well as **XAMPP** versions **5.6.x and 5.6.x**, which can remain unchanged.

- The redirect server, hosted on AWS Cloud, requires no remediation as it is already up to date

Decision

> ⚑ **Re-Host intranet Cloud Link application to existing AWS EC2 RHEL 9.3 server and MySQL Database on AWS RDS MySQL server.**

> ⚑ The application should be re-hosted to existing **AWS EC2 RHEL 9.3 Environment** with following the guidelines outlined and recommendations below. This approach provides the benefit of aligning with Sanofi Technology requirements by eliminating Operating System obsolescence and reduced no of servers.

The application should be integrated into the existing AWS EC2 environment, following these recommendations:

- Transition the on-premises **Cloudlink.Sanofi.com** website to the existing AWS RHEL 9.3 XAMPP Server (**XSPL70S322A**).

- Limit access to the **Cloudlink.Sanofi.com** website exclusively to Sanofi internal users.

- Upgrade the MySQL server within the XAMPP server to MySQL 8.0.

- **Migrate the MySQL schema and import data from the current on-premises servers to the newly provisioned AWS RDS MySQL 8.0** .

- **Establish a connection between the Cloudlink.Sanofi.com and SURL.Sanofi.com applications and the new MySQL 8.0 database instances.**
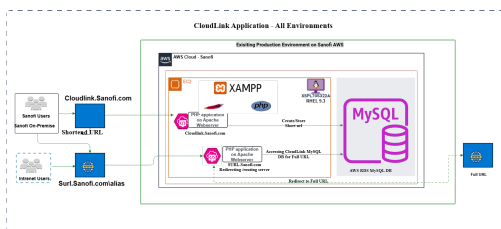
- Update all application documentation related to the infrastructure to reflect the new servers and services.
- Reconfigure the ZScaler connection to route traffic to the new servers within the AWS environment.

High-Level AWS Architecture

The diagram illustrates the architecture for hosting the Cloud Link application and MySQL database in exiting AWS Mode 1 filtered environment in AMER region.

Architecture Schema

Proposed Architecture = To Be

Technical Specifications

Environment	Production	Staging	Integration	Development
Application	Will use exiting EC2 instance **(XSPL70S322A)** and exiting AWS environment **(Sanofi_EMEA_Prod_CloudLink - 434273790685)**	N/A	N/A	N/A
Configuration	Will use exiting EC2 instance **(XSPL70S322A)**	N/A	N/A	N/A
Database	Will provision a new **AWS RDS MySQL database instance** in the exiting AWS environment **(Sanofi_EMEA_Prod_CloudLink - 434273790685)**	N/A	N/A	N/A
Configuration	Instance type = db.m4.xlarge, VCPU = 4, Memory= 16GB Storage = 256GB, Single AZ	N/A	N/A	N/A

Key Points / Notes

- CloudLink is an intranet Non GXP application.

- There is only one environment: PROD.

- The exiting dedicated AWS Mode 1 filtered workload account
  Sanofi_EMEA_Prod_CloudLink - 434273790685 will be used for cloudlink application
  and MySQL database.

- Only one environment, specifically "prod", has been explicitly requested by the application
  team.

- The application is hosted in the AMER region.

- The PAM group or PAM ID will be used to gain access to the Bastion host / NME portal to
  access and manage the application and database.

- The cloudLink is PHP application on Apache webserver

Bastion Account Details

Note - Required PAM group names or PAM IDs for remote access to Application and
Database servers for administration, management, or app installations.

PAM Group name = N/A

NME Portal - The NME portal [Sanofi Intranet SAG](#) allowing users with the PAM ID to manage
the PostgreSQL database hosted in the AWS PROD Shared CBZ filtered database workload
account for STAG and PROD, as well as the AWS Shared workload for DEV and INT
accounts.

Network flow matrix

Source Name	IP/Subnet	Zone	Dest. Name	IP/Subnet	Zone	Ports (TCP/UDP)	Encryption (Yes/No)	Flow Direction	Comment & Business Justification
AWS [Cloudlink.sanofi.com](#)			AWS RDS MySQL Database						
AWS [Surl.sanof](#)			AWS RDS MySQL						

i.com,			Database							
NGDC AWS Cloudlink. sanofi.co m			AWS RDS MySQL Database							

Cost Details

AWS Pricing

Production:

AWS RDS Monthly Cost: € 365.24

Yeary Cost: -€ 4,382.88

Labels/Tagging

Field	Value
APM ID	APM0067435
MIO	AP067435
Business Unit	Business Capability
Network Zone	Filtered
Backup policy	Automated Scheduled Backup

Application Portfolio Management Details

Details	Production
Service offering	Cloud Link | Business Application | ServiceNow
Automated Service	Cloud Link | Business Application | ServiceNow
Environment	Prod
APM Name	CloudLink
APM ID	APM0067435
MIO	AP067435

Business Unit	Business Capability
Application Owner	ravindranath.bachwala@sanofi.com
Compliance	Non GXP
Application Service Level commitment	
Strategic Project ID	PRJ0153158
Operational Project ID	PRJ0169307
PMS ID	
Backup Policy	Automated Scheduled Backup
Network Zone	Filtered
Patching Wave	*to be coordinated with application owner*

Related Documents

ADS/TDS	[TDR Cloud Link APM0067435 - REVAMP_STORM - Central Confluence](#)
Jira Link	[STORM-6610] Cloud Link APM0067435 Alpha Pod - Central Jira [CTDCMT-232] Cloud Link APM0067435 [REVAMP] - Central Jira
Cost Approval	⌗ STORM-7501: Cloud Link APM0067435 Cloud Run cost Approval `DONE`

Rationale

The **Cloud Link** application which uses an **Windows 2012 R2 server** and **MySql 5.x** database which currently outdated and non-complaint as per Sanofi standards. Based on the obsolescence this needs to be moved to new cloud-based architecture and design approaches need to be devised to keep pace with the Sanofi Technology standards. To meet the evolving demands of the modern technology stack, the application needs to be upgraded with the latest set of components (OS Upgrade) that are compliant with Sanofi standards.

Authors

@Nitin Sonare - Cloud solution Architect

Contributors

@ravi.pidaparthy@sanofi.com – Solution Architect

@ravindranath.bachwala@sanofi.com – Application Owner