Near Real Time Identity Operations

BIOMETRICS
Department of Defense
Project Management Office

LATCH provided a Senior Cloud Architect and Cybersecurity Engineer to support the Near Real Time Identity Operations (NRTIO) project team in biometric and identity screening. We planned, estimated, budgeted, and provided cost control and management. We refreshed the SATCOM network and migrated and refactored the NRTIO system to the Amazon Web Service (AWS) GovCloud. We developed a technical solution, to-be architecture, project plan, and a financial analysis for a cloud migration from an OCONUS data center to AWS GovCloud.

US Army PM Biometrics
W15P7T-17-D-0117
Prime
NAICS: 541715
June 2019 – June 2021

COST MANAGEMENT

LATCH supported a cost benefit analysis which included a study of networks, systems, and applications; a prospective cloud-architecture; risks and mitigations; and an integrated master schedule (IMS). We established a cost saving strategy and provided financial management support by participating in a six-month audit of the AWS environment. We determined potential causes of overrun and evaluated those by looking at configurations, resources, and requirements.

BUILDING CLOUD ARCHITECTURE

LATCH supported the migration of the NRTIO legacy solution by planning, implementing, sustaining, and maintaining a lean cloud infrastructure to preserve and regulate systems. We formulated baselines for virtual instances by working with engineers to define each component's requirements and specifications. We developed an Infrastructure as Code approach, allowing our scripts to use variables which enabled us to streamline processes and reduce rework.

MIGRATION STRATEGY

LATCH conducted a cloud migration study focused on enhancing interoperability and system performance. We implemented an Identification, Rapid Evaluation, and Prioritization process to determine cloud readiness. We provided application architecture, design, and implementation details; an IMS; and cybersecurity and Authority to Operate. We migrated and refactored the biometric system to an AWS GovCloud environment at Impact Level 4.

PRODUCT SUPPORT

LATCH supported the development and implementation of a product support strategy to promote supportability. This included the optimization of reliability, availability, maintainability, and reduction of total ownership costs. We supported the development and implementation of technical refreshes in the Cloud which integrates intuitive and advanced technologies into a workflow to increase productivity and efficiency.

UEI: SLNWNL1AZYB7
CAGE: 7DV30
NAICS: 541990, 541511, 541512, 541513, 541519, 541611, 541618, 541715

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SBA U.S. Small Business Administration 8(a) CERTIFIED

GSA Schedule
SIN: 518210C, 54151S

Near Real Time Identity Operations Bridge

BIOMETRICS
Department of Defense
Project Management Office

LATCH's cloud systems engineer supported the migration of the NRTIO Data Center to the cloud where they assisted in the maintenance and sustainment of the cloud and multiple geographically distributed engineering scrum-teams. We support automation efforts of releasing and monitoring within the cloud infrastructure as well as management of key performance indicators to provide visibility into system health. We plan and lead technology evaluation for critical areas as well as manage and sustain the stability, availability, and performance of the cloud system.

US Army PM Biometrics
W15P7T-19-D-003
Subcontractor
NAICS: 54712
October 2021 –September 2022

CLOUD IMPLEMENTATION

LATCH emphasizes defense by incorporating a zero-trust architecture in which we use AWS security groups to separate transport, web services, and database services. We implemented access controls for user accounts and our team's cloud environment accounts. We validate the security controls implemented in the provisioned resources through Infrastructure as a Code which allows for a repeatable deployment process and simplified security controls.

CLOUD ARCHITECTURE

LATCH assists the Program Office by executing tasks with a future state architecture in mind to avoid creating unintended constraints or limitations against the further evolution of the system. As a system evolves, we implement services, solutions, and automation that supports NRTIO's early adoption of technical strategies, architecture guidelines, and evolving standards while eliminating containerization, micro-services, and dynamic scaling risks.

DEVSECOPS

LATCH uses cloud agnostic tools and cloud native tools to support a Continuous Integration/ Continuous Deployment Pipeline for operations and automation. Our Infrastructure as Code approach allows us to support the automation of the build-out of the NRTIO cloud infrastructure while maintaining granular control over the process which ensures repeatability. Our automation process also includes monitoring, security aggregation, and backups.

INFRASTRUCTURE CONSOLIDATION

LATCH supported the migration to an Impact Level 4 environment in AWS GovCloud – East to support economy of scale, cost reduction of overhead and administration activities, and technology refreshes. Mission critical software applications benefit from increased performance, reliability, stability, and transport methods available to them from the cloud environment. We increase security with cloud native and cloud agnostic services, tools, and networking solutions.

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SDAP, Service Catalog, Operational Bots Support

LATCH focuses on a strategic application of cloud-native services, cognitive automation, data analytics, and business process re-engineering in support of the Service Delivery Automation Platform (SDAP), Enterprise Infrastructure Product Line (EIPL), and Operational Bots. We enhance the existing Platform and Service Catalog, quality and integrity of the data, and expand the number of services provided through the portal. We support the integration for the UiPath Orchestrator and Rasa Enterprise platforms while refining the policies for bot development.

US Patent and Trademark Office
47QTCB21D0215
Prime
NAICS: 541512
June 2022 – April 2023

SDAP PRODUCT INTEGRATION

LATCH supports the SDAP Universal application with full development and ongoing operational support of the application. We provide enhancements that expand functionality, performance, and the user experience through iterative interface design. SDAP Universal leverages existing applications such as Microsoft SharePoint with the goal of delivering an ordering lifecycle for products and services without heavy investment.

UIPATH BOTS

LATCH supports USPTO's implementation of UiPath by providing integration, sustainment, and support to existing administration functions which empowers and enhances the product teams' ability to design, implement, and use bots. We manage and develop the UiPath Orchestrator Administrator. We integrate UiPath bots into our overall bot management strategy and technical roadmap to ensure a consolidated enterprise approach.

SERVICENOW INTEGRATION

LATCH maintains a collaborative relationship with the ServiceNow team to align and develop connections for future services. Using existing endpoints, we automate and reduce the amount of overhead required to use ServiceNow as a standalone tool by creating user friendly front-end and management tools. LATCH monitors and evaluates if ServiceNow has the capabilities needed to help the DevOps Teams succeed.

NATURAL LANGUAGE PROCESSING/AI

LATCH supports Natural Language Processing (NLP) and Artificial Intelligence (AI) to enhance the performance standards of bots. We ensure ChatBots interact with people or other bots to perform task-oriented dialogues and to seek human intervention as needed. We use and support ChatBots such as Rasa and Azure Power Virtual Agent to answer questions or perform tasks posed by customers, employees, or other bots.

Okta Integration Support

US Patent and Trademark Office
47QTCB21D0215
Prime
NAICS: [000000]
January 2022 – April 2023

LATCH provides technical guidance towards the removal of the Oracle Identity Management product where we coordinate cost, schedule, and resourcing to ensure there is no loss or impact to services. We are the architectural Points of Contact (POC) for Okta application integration where we bring a strong and in-depth knowledge of the USPTO environment, provide guidance to all team members, and engage with application teams to enhance integration efforts. We provide support coverage to reduce scheduling risks.

MIGRATION PLAN

LATCH managed the migration from an Oracle Identity Management to Okta Identity and Access Management. We removed all Oracle dependencies which enabled USPTO to decommission the full Oracle Cloud Stack. We defined milestones to track our progress and defined a transition architecture to support the migration to Okta. We minimized impact to users while maintaining Single Sign-On (SSO) throughout the transition period.

IMPLEMENTING OKTA

LATCH's approach to application integration efforts empowers our team to communicate, organize, and provide technical support to USPTO. We provide application architects and technical leads with detailed understandings of features offered by USPTO Identity-as-a-Service (IDaaS)/SSO. Through our collaboration with the customer, our teams enhance the quality of the Okta integration through effective knowledge sharing.

DECOMMISSIONING ORACLE

LATCH removed Oracle dependencies and supported efforts to shut down services, which led to immediate cost savings. We decommissioned monitoring hardware and supported software configurations, firewall rules, IP addresses, and other artifacts. We store artifacts in the approved repositories for documentation, configurations, and source code. We track the migration to verify and validate our alignment to USPTO goals.

CUSTOM CONFIGURATIONS

LATCH uses our experience, knowledge, and expertise to create customizable solutions with tools such as F5 iRules and custom API policies. We customize the Identity and Access Management (IAM) platform to meet specific requirements of each application customer as well as integrate IAM/SSO solutions with application teams. We customize each configuration to meet customer authentication and authorization needs.

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Cloud Services Operations & Maintenance

U.S. AIR FORCE

LATCH evaluates, pilots, and integrates the newest features and capabilities to achieve modernization and operations objectives at the US Air Force Academy. We bring the latest technologies, methodologies, and solutions to execute engineering, integration, help desk, and Operations & Maintenance (O&M) tasks to support cloud and cybersecurity services. We support a shifting set of 7,000 cadets, faculty, and staff with needs related to Microsoft Azure, Microsoft 365 A5, cybersecurity monitoring and response, Tier 2 help desk, and integrations between on-premises and cloud environments.

US Air Force Academy
75N98118D00025
Subcontractor
NAICS: 541519
November 2020 – September 2023

CLOUD SERVICES O&M

LATCH provides cloud management, email services, data protection, and mobile services. We manage cloud-hosted workloads, virtual machines, Active Directory (AD), identity and access management, and network security groups. We manage Exchange Online, distribution lists, and Office 365 groups; support security; implement countermeasures; implement vulnerability management; and manage multi-factor authentication and security monitoring.

SECURITY SERVICES

Our team patches and supports systems in addition to scanning to verify patch and configuration compliance to identify vulnerabilities and misconfigurations. To strengthen and optimize our cybersecurity efforts, our team uses Tanium Endpoint Management to conduct real-time endpoint monitoring, protecting, complying, discovering, and threat response. To support security controls, we patch, configure, and test support systems.

SUPPORT SYSTEMS

LATCH maintains Dell VxRail hyper-converged infrastructure and storage, VMWare and virtualization services, AD, and print services. We manage Tanium module operations, Apple Business Manager, Jamf, the bulk provisioning of incoming Cadets, and the transitioning of Cadet accounts to alumni accounts. We report on licenses and support financial objectives. We track inbound, outbound, and on-hand equipment and coordinate equipment transfers.

SERVICE DESK

LATCH supports O&M related to security patching, asset management, and uptime/availability requirements. We provide Tier 2 and 3 help desk support to the Government's Tier 1 analysts with escalations and resolutions which include cloud, on-premises, and associated client or user related services as well as engineering, configurations, outages, and security breaches. We provide after-hours customer support and on-call rotations to provide 24/7 coverage.

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Medical Device Verification Using Model-Based Testing

DARPA

LATCH, the University of Pennsylvania, and Altrix Medical, LLC are developing and refining a methodology to identify and verify vulnerabilities in the software and firmware of hardware devices with software states. Our research is predicated on the existing research results of our Principal Investigator, Co-Principal Investigator, and Technical Advisor. Our previous results provide a foundation of documented feasibility for the further establishment of a methodology that uses lightweight formal methods to support post-market independent verification.

MODEL BASED TESTING

LATCH intends to extract binary firmware and software code from medical devices using a Model Based Testing (MBT) methodology. The system creates a low-level model which is extracted from the firmware and software and is reconciled to a high-level abstract state model. After establishing correspondence between the extracted states and model, the system executes traces through a software adapter. Model traces find unsafe states based on the abstract model.

HUMAN-IN-THE-LOOP INVOLVEMENT

LATCH increases the degree of automation in the model extraction algorithm. Several aspects of the model extraction procedure require intervention of the human user, such as the initial configuration of the PathCrawler plugin and handling of unexpected errors. We eliminated most, if not all, human interventions. We performed additional case studies of model extraction from other embedded devices to demonstrate the broader applicability of the approach.

MODEL TESTING AND REFINEMENTS

LATCH runs code and collects results during the testing of our abstract Automated External Defibrillator (AED) model in which we use the MBT methodology, abstract model, low level model, and software and hardware adapters. To perform software-in-the-loop testing, we assess the logic of a device and inject varying software faults that are tested by the model. Our team initiates and executes testing, collects model traces, and documents the results.

EXTRACTION FROM FIRMWARE BINARIES

LATCH introduces additional automation for the extraction processes by using Ghidra which yielded C code that can be used as input into PathCrawler. We designed and implemented an algorithm based on insights from feasibility experiments which overcame Ghirdra's limitations with respect to a class of commonly encountered data structures reducing the need for manual intervention. We combined the integration and decompilation of binaries with model extraction.

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Access Services Development & Integration Support

LATCH provided the Department of Veteran Affairs (VA) Identity and Access Management (IAM) program with architecture and project management support on a repository with 20+ million identities and interfaces to over 270 applications. As an enterprise architect, we worked on the Authorization Management System (AMS) and VA Logon design and documentation. We led requirements elaboration sessions within sub teams, and we executed contract and project management activities on behalf of the prime contractor.

Department of Veteran Affairs
VA11810040062
Subcontractor
NAICS: 541512
March 2016 – September 2016

ENTERPRISE SERVICE DELIVERY

LATCH supported the development of enterprise IAM services. Our team collaborated with internal and external stakeholders to promote understanding of requirements, use cases, limitations, and opportunities for improvement. Using an Agile centered approach, we focused on requirements gathering and design, which supported configuration, enhancement, integration, and deployment of functionality.

USING AGILE METHODOLOGY

LATCH supported the development, integration, and sustainment efforts of the IAM program by holding daily scrums and sprints to accomplish defined goals, and retrospectives to identify lessons learned. We collaborated with Subject Matter Experts (SMEs) and technical staff across Access Control Service (AcS) work streams. Our team provided a modern architecture while representing the latest technological evolutions.

CREDENTIAL SERVICE PROVIDER

LATCH supported the configuration, development, integration, and deployment of an internal Credential Service Provider (CSP) which enabled users to register, update, manage, and authenticate a subscriber's unique identities using their credentials. The CSP allows applications to verify credentials using Security Assertion Markup Language (SAML), which provides an interface to Single Sign On external (SSOe) services.

COTS SECURITY PRODUCTS

LATCH created a customized solution for the VA's security products which included Computer Associates SiteMinder, and other Commercial off the Shelf (COTS) products. Our team focused on performance and reliability as well as providing shared services for infrastructure, security, and operations. We enabled Single Sign-On (SSO) across web servers and facilitated requests, redirects, and forwards.

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Application Cloud Readiness Assessment

DHA
Defense Health Agency ®

LATCH supported the Defense Health Agency (DHA) in addressing technical, business, and security challenges while migrating the Solution Delivery Division's (SDD) applications to a modern information technology (IT) environment. Our team implemented a cloud assessment which combined enterprise architecture, analysis of alternatives, decision analysis resolution, IT financial modeling, and business case analysis. We focused on identifying risks, reducing costs and levels of effort, and designing a to be cloud architecture based on best practices.

Defense Health Agency
HT001518F0101
Consultant
NAICS: 541512
September 2018 – August 2019

FOUR STEP EVALUATION METHODOLOGY

LATCH created a customized methodology that evaluated existing systems and created a cloud assessment through a four-step process: identification, rapid evaluation, prioritization, and mitigation strategy. Our goal was to support DHA through a data center migration by providing fast assessments with a high degree of accuracy to senior leadership, who would then be empowered to make informed decisions on the disposition of systems at the legacy data center.

MIGRATION STRATEGY

LATCH developed to be cloud architectures and created migration plans to include refactoring, re-hosting, and re-platforming. We created and developed a migration strategy, which contains approaches for strategy, system architecture, project schedule, cloud virtual server configuration, cost estimation, and risk mitigation. Our team provided shared services for infrastructure, security, and operations while promoting performance and reliability.

SYSTEM ASSESSMENT

LATCH implemented a cloud assessment framework which combined enterprise architecture, analysis of alternatives, decision analysis resolution, IT financial modeling, and business case analysis. We designed a target cloud architecture as well as a project plan. We measured, analyzed, and identified gaps in the DHA's cloud readiness status and also identified risks associated with migration while reducing costs and levels of effort.

OPERATIONS FRAMEWORK

LATCH addressed the technical, business, and security challenges facing its customers as SDD applications migrated to a modern IT environment. We supported development and integration of efforts by holding daily scrums and sprints to accomplish defined goals. We collaborated with internal and external stakeholders to understand through case analysis any limitations or opportunities and maintained transparency for our customers.

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