# Proposal

Intelligent Document Management Solution

For

Blue Shield of California

**Creation Date: 10/27/2022**
**End User Representative:**
Grace Morgan
Grace.Morgan@blueshieldca.com

**Proposal Version #: v1.0**
**Prepared By:**
Simon Palmer
Simon.Palmer@nathcorp.com

**C O N F I D E N T I A L**

PLEASE NOTE: This Proposal contains system configuration, pricing, and other business information that has been developed by NathCorp using proprietary methodologies designed to provide optimal solutions to your firm's business needs as you have expressed them to us. The information contained herein is therefore confidential in nature and is to be treated as your firm would treat its own confidential information and not disclosed to any employee of your firm not having a need to know or anyone who is not an employee of your firm without our express written permission.

# 1. Purpose / Background

This Proposal sets out the tasks, responsibilities, work scope and other items applicable for the deployment a new cloud based Intelligent Document Management System ("IDMS") to Blue Shield of California, ("BSC").

BSC currently uses a 3rd party vendor on premise implementation providing a document management repository hosting mostly Claims images that utilizes an OCR engine to extract specific fields from the images into metadata that serves and supports their claims system and integrates with various other systems requiring specific metadata information to support their business needs. BSC is looking to replace their current 3rd party implementation with the goal to improve the overall accuracy of metadata and efficiency of the associated operations to reduce manual interaction, time, and costs. In addition, BSC would like the proposed solution to provide more out of the box capabilities and take advantage of a cloud-based solution with built-in availability and disaster recovery capabilities.

# 2. Proposed Intelligent Document Management Solution Architecture

NathCorp is proposing a cloud-based solution utilizing BSC's existing Microsoft SharePoint Online platform along with integrating Microsoft's Syntex "Intelligent Document Processing" as a replacement solution to BSC's current implementation. Utilizing the Microsoft Cloud Platform, all components will run in Azure providing high availability, achieving 99.5% availability as well as providing geo-redundancy across multiple cloud data centers in the US. This availability and redundancy also applies to the storage tier down to the storage layer.

Microsoft SharePoint Online is a proven platform that provides enterprise-scale capabilities to meet business-critical needs including document management, managing content, and automating business processes to enable better informed decisions. BSC will be able to take advantage of the following benefits utilizing their current SharePoint Online deployment:

- Reduce costs leveraging existing SharePoint licenses
- Utilize built in search capabilities simplifying how people find and share information
- Security is completely integrated with BSC Azure AD and M365 Groups. Any custom azure workflows can run under BSC security context.
- With SharePoint lists and libraries, BSC will be able to utilize Power Automate and Power Apps to create rich forms, workflows and custom apps to improve and automate current processes
- Opportunities to integrate with other M365 applications (Teams, Exchange, PowerBI embedded, etc.) for future usage scenarios to improve collaboration and business processes
- Support current BSC browser standards
- Can be accessed from any device included mobile devices; Microsoft SharePoint Mobile app is supported on iPhone and android devices

Microsoft Syntex is an Intelligent Document Processing (IDP) software solution that captures, transforms, and processes data from documents (e.g., e-mail, text, Word, PDF, or scanned documents). The capabilities provided by Syntex meet the document processing requirements per BSC RFQ. Below are key benefits that BSC will be able to leverage with this solution:

- Completely integrates with SharePoint Online and Azure Security and existing availability architecture
- Utilizes AI technologies computer vision, OCR, and ML to extract, analyze, categorize specific information from fields in scanned documents that learns and improves accuracy over time
- Adds the extracted content from scanned images to SharePoint libraries to be available for use of existing SharePoint features (knowledge discovery and sharing, content governance, etc.) as well as automating workflows to improve business processes
- Data extracted can be exported to external systems to support other existing business processes
- Reduce customization of the end-to-end solution by leveraging Syntex out of the box capabilities

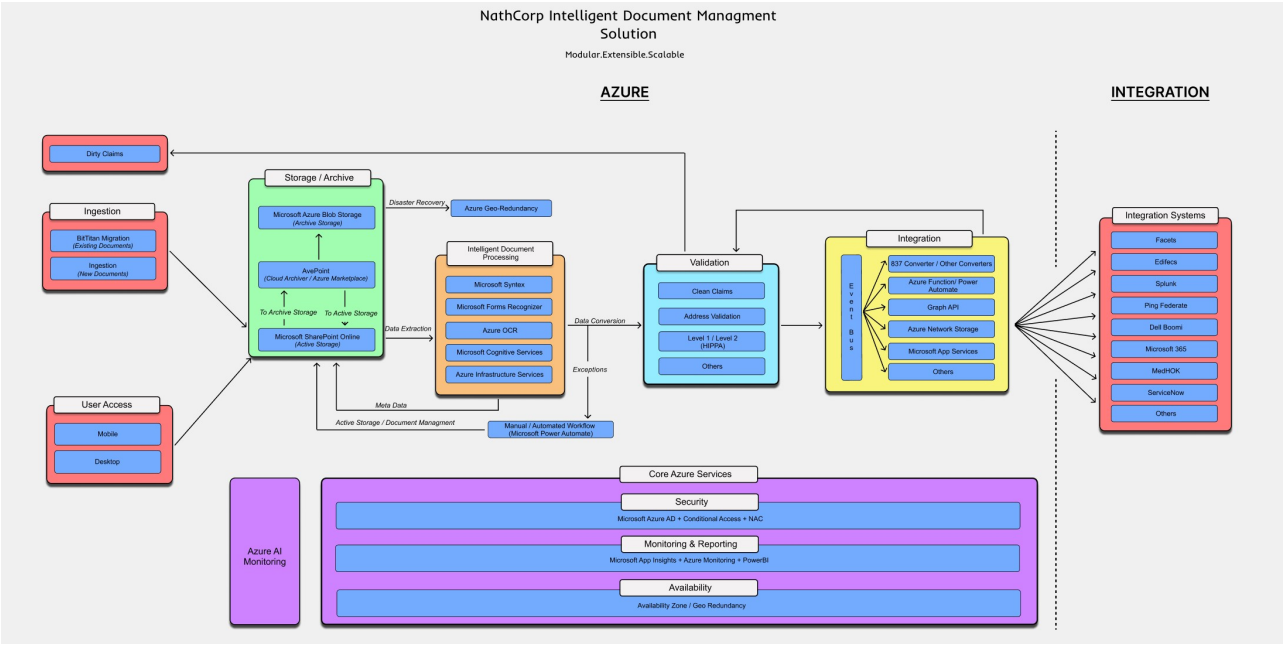
The foundation of our proposed IDMS solution uses standard Microsoft Azure components to deliver the required cloud-based functionality; additionally, we have included the following suite of Microsoft cloud-based products to ensure our response represents a complete end-to-end solution based upon the requirements set out in the RFQ. These components are all industry standard, off the shelf components, highly rated in their technology category by Gartner and other key rating agencies.

- Microsoft SharePoint Online – enterprise document management system for storage and retrieval of more recent images and Meta Data
- Microsoft Syntex – for key intelligent document processing, interpretation, and categorization
- Microsoft Cognitive Services / Forms Recognizer / Azure OCR – for AI and ML services to read and interpret the 150-300 million documents scanned annually
- Microsoft Power Automate – to support Workflow automation for the tasks anticipated by the requirements set out in the RFQ
- AvePoint Cloud Archiver – to automatically archive images and data, and retrieve from archive as needed within the stated time in the RFQ
- Microsoft Azure Blob Storage – for archive storage of images and data
- Microsoft Azure AD – for security and identity management leveraging BSC existing architecture
- Microsoft App Services – to enable certain application integrations and connections to make available metadata extracted from SharePoint Online. (Any integration not supported by Rest API will be facilitated by an alternate method to be defined in partnership with the BSC team.)

- Microsoft App Insights / Monitoring / Azure AI – to monitor the health of the complete solution, transfer log entries to Splunk as needed, and use native AI capabilities to promote “self-healing” wherever possible.

The proposed comprehensive logical architecture is set out in Figure 1 below.

### FIGURE 1: HIGH LEVEL LOGICAL ARCHITECTURE - INTELLIGENT DOCUMENT MANAGEMENT SOLUTION



# 3. Project Scope

This Proposal focuses on the services required to design, build and deploy a cloud based Intelligent Document Management System based on Microsoft Technologies to address the key features and functionality set out in BSC's RFQ.

The scope of work is provided in multiple Tasks running in parallel to target an April 28th, 2023, timeline as follows:

- Task #1 – Design and build the Document Management Intelligence System
- Task #2 – Implement a tiered storage archiving solution
- Task #3 – Ingest 2 billion pages to IDMS
- Task #4 – Availability and Disaster Recovery
- Task #5 – Develop and implement custom interfaces
- Task #6 – Data and Reporting Feed
- Task #7 – Program Management

This Proposal covers the expected services for the (7) Tasks as described above. Delivery of services for subsequent Phases will be covered in separate SOW(s).

## 3.1 Tasks and Activities will Include:

**Task 1 - Design and build the Intelligent Document Management Solution**

NathCorp to staff a project manager along with a team consisting of Architects, SharePoint / Syntex consultants, Developers and Testers to design and build the Intelligent Document Management Solution per BSC requirements.

**In Scope**

1. **Discovery Phase**
    - Assess current BSC SharePoint Online implementation
    - Confirm use cases and requirements for SharePoint / Syntex document management and intelligent document processing
    - Understand and document Security and Governance requirements
    - Confirm document types and meta data extraction for OCR / Intelligent document processing
    - Understand any additional workflows / automation required to be implemented for the IDMS
2. **Design and Plan Phase**

- Put together a detailed design for the solution components
    i. SharePoint Information Architecture including legal hold and retention policies
    ii. Syntex Architecture plus intelligent document processing workflow components (Azure OCR and Cognitive API)
    iii. Automation design using Power Automate; interface design using Power Apps
- Create detailed project plan to support the subsequence phases for this task
- Identify and track potential risks associated

3. **Build Phase**
    - Establish test environment with required cloud components necessary to validate the design
    - Configure Out of the Box cloud components to meet the solution requirements
    - Use Form Recognizer customized forms, pre-built and layout APIs to extract information from your documents
    - For each document type in scope, ingest and train the IDMS to extract the proper fields into metadata utilizing the ML models
    - Confirm accuracy for each document type and initiate workflow for manual review
    - Implement automation using Power Automate / Power Apps
    - Test and validate that the solution meets the requirements
4. **Deployment Phase**
    - Create production cutover plan
    - Make updates to production SharePoint Online based on the configuration validated in the build phase
    - Conduct initial production pilot to confirm functionality of the IDMS
    - Implement production cutover coordinated with the other Tasks below

**Assumptions**

1. The solution will utilize BSC current production SharePoint Online implementation adding Syntex as the OCR / AI engine
2. Without understanding BSC current SharePoint usage and performance characteristics, changes may be required to improve overall performance
3. All document types and meta data fields required for OCR / Processing will be provided by BSC at the start of the engagement
4. Document types in scope are:
    - PDR – Provider Dispute Resolution Request
    - MSP – Medicare Secondary Payment (MSP) letter
    - AGD – Appeals & Grievances letter

- Non-Standard Claim
- Dental Claim
- UB Claim
- HCFA Claim

5. Only the English Language will be supported for this first release

**Task 2 – Implement a tiered storage archiving solution**

**In Scope**

1. Confirm storage requirements, archiving rules and document retention rules
2. Design and plan storage solution to meet the requirements
3. Build, configure and implement the storage solution integrating with SharePoint Online and Azure Blob Storage in test environment
4. Test and validate the solution meets the archiving requirements
5. Production implementation

**Assumptions**

1. Approximately 5TB of data to be supported
2. A 3rd party Azure SaaS Vendor will be used for the archive / restore solution from SharePoint Online to Azure Blob Storage
3. All Document URLs provided to BSC systems will be available in SharePoint Online for 2 years; documents older than 2 years will be requested using a stub URL from the tiered storage solution in which at that point, after retrieval, the URL will be available in SharePoint to other systems

**Task 3 – Availability and Disaster Recovery**

**In Scope**

1. Confirm availability and disaster recovery requirements across all cloud components included for the solution
2. Update design if needed
3. Update Azure Cost Model if needed
4. Incorporate changes to the production implementation to meet requirements

**Assumptions**

1. Only the cloud components that comprise the IDMS will be addressed in this Task. NathCorp assumes all BSC on-premises systems and networks already meet the necessary availability and disaster recovery requirements

**Task 4 – Ingest 2 billion pages to IDMS**

**In Scope**

1. Confirm documents, metadata, security requirements for migration to SharePoint Online
2. Implement migration tools and validate connections between on-premises and cloud
3. Test and validate migration scenarios in a test environment with SharePoint Online, Syntex and 3rd party storage solution
4. Confirm throughput speeds and potential migration times for estimations
5. Conduct production migration over agreed timeslots
6. Keep on-premise documents / metadata updated with IDMS until production cutover

**Assumptions**

1. Approximately 2 billion pages or up to 5TB of data will be copied from BSC on-premises environment to SharePoint Online
2. BSC will make available the documents and metadata to be migrated on a file share.
3. BSC to provide mapping of Microsoft User Accounts and Access Requirements for each migrated document and associated metadata
4. Currently associated metadata with each document will be included for the migration to SharePoint Online; only new documents will utilize the SharePoint / Syntex IDMS beginning production cutover.
5. A 3rd party migration tool will be used to copy documents and metadata to BSC SharePoint Online
6. Sufficient network bandwidth exists to enable timely data transfer

**Task 5 – Develop custom interfaces**

NathCorp to staff a project manager along with a team of developers and testers to build custom interfaces per BSC requirements to various BSC systems. The interfaces will be developed in Azure providing data and transactions between SharePoint Online and BSC's systems that are in scope.

**In Scope**

1. Confirm architecture and specifications for each interface with BSC
2. Confirm test cases to support each interface
3. Develop a plan and schedule for each interface
4. Commence development and testing of each interface; development and testing will run in parallel for each interface to speed timeline to production
5. Develop Monitoring, Auditing and Reporting for each interface
6. Validate interface functionality in test environment
7. Work with BSC on production cutover plan
8. Assist BSC with production implementation

**Assumptions**

1. Interfaces to be custom developed or configured will be to the following BSC systems -Facets, Edifecs, Splunk, Ping Federate, Dell Boomi, M365, MedHOK, ServiceNow
2. BSC will provide the architecture and functional specification requirements for each interface at the start of the engagement
3. Updated estimates and timeline to complete each interface will be provided after review of architecture and specification requirements
4. BSC will provide the test cases for each interface; BSC resources will validate custom interface meets each interface specification
5. BSC will provide a test environment to include all systems in scope to test interfaces from Azure and SharePoint Online
6. NathCorp development team will utilize Azure DevOps as the development platform for requirements, source code management, and testing

**Task 6 – Data and Reporting Feed**

**In Scope**

1. Confirm data requirements and intervals to support BSC reporting needs
2. Confirm data repository interface and architecture to support data feeds
3. Develop design and plan of interface from IDMS to data source and ingestion process to meet BSC reporting system specification
4. Create test plan and test cases to support requirements
5. Develop the solution in a test lab environment
6. Test and validate interface connection and data
7. Prepare production cutover plan
8. Implement production changes

**Assumptions**

1. NathCorp's primary focus for this Task is to provide the correct data in proper formats per BSC requirements to the proper data source; BSC will still own creation and updating of reports.
2. BSC will provide a test environment that simulates the production data and reporting system to validate the solution

**Task 7 – Program Management**

NathCorp to staff multiple project managers in order run the above services Tasks in parallel. The lead project manager or program manager will work jointly as a "Leadership Team" with the assigned BSC Product Owner and IT Project Manager, to deliver the overall Intelligent Document Management Solution and related NathCorp resources will create and manage the following artifacts

**In Scope**

1. **Program Manager Responsibilities**
    a. Primary point of contact for BSC team
    b. Responsible for managing and coordinating the overall project delivery working with the assigned BSC Project Manager
    c. Coordinates and communicates with BSC PM to facilitate workshops, meetings, etc.
    d. Develops and owns the detailed master project plan
    e. Owns status reporting, tracking issues and risks; conducts weekly status meetings
    f. Contributes to communications to BSC stakeholders; conducts monthly stakeholder meetings
    g. Responsible for resource allocation, risk management, project priorities, and identifying resource needs
    h. Jointly works with assigned NathCorp project managers to Task 1 and Task 5 to align master project plan, schedule, etc.

**Assumptions**

1. BSC to provide a full-time project manager who will be responsible for allocating required BSC resources needed for this project.
2. BSC to make available required resources needed for each Task

## 3.2 Project Deliverables

The following Deliverables will be produced during the project.

1. Requirement Documents
2. Architecture and diagrams of the proposed solution
3. Detailed project plans
4. Configuration documents and “As Built”
5. Updated Azure Costing Models
6. Provide ongoing knowledge transfer to the BSC team

## 3.3 General Project Assumptions

Services will be delivered based upon the following assumptions:

1. BSC will provide a full-time project manager to work with the NathCorp Program Manager. The BSC project manager will own the internal BSC communication plan and coordination of BSC resources required during the project
2. BSC will make available required resources and subject matter experts needed throughout the project in a timely manner
3. BSC will provide proper credentials and access to require systems in their environment to NathCorp resources
4. The network connectivity / utilization between BSC on-premises infrastructure and Azure are sufficient to support the IDMS transactions
5. Security (Authentication and Authorization) are already in place; NathCorp solution will utilize BSC existing Azure AD
6. BSC systems and applications will provide the necessary data feeds and performance to ensure the NathCorp IDM solution can perform to the required SLAs.

## 3.4 Project Out-of-Scope

The following items are specifically excluded from the services set out in this SOW.

1. Formal training and creation of training materials; Nathcorp will provide knowledge transfer to the BSC team throughout the project
2. Configuration of third-party applications and Devices / Network Devices (firewalls, switches, port rules, etc.)
3. Customizations or development to any BSC Applications or Systems – only interfaces to specific systems identified in this Proposal will be developed
4. Work on any BSC environment issues
5. Analysis or changes to any applications; implement or configure applications within BSC's environment.
6. Development of Administrators Guide, Operational Procedures, Maintenance Procedures.
7. Availability and Disaster Recovery for BSC on-premises environment

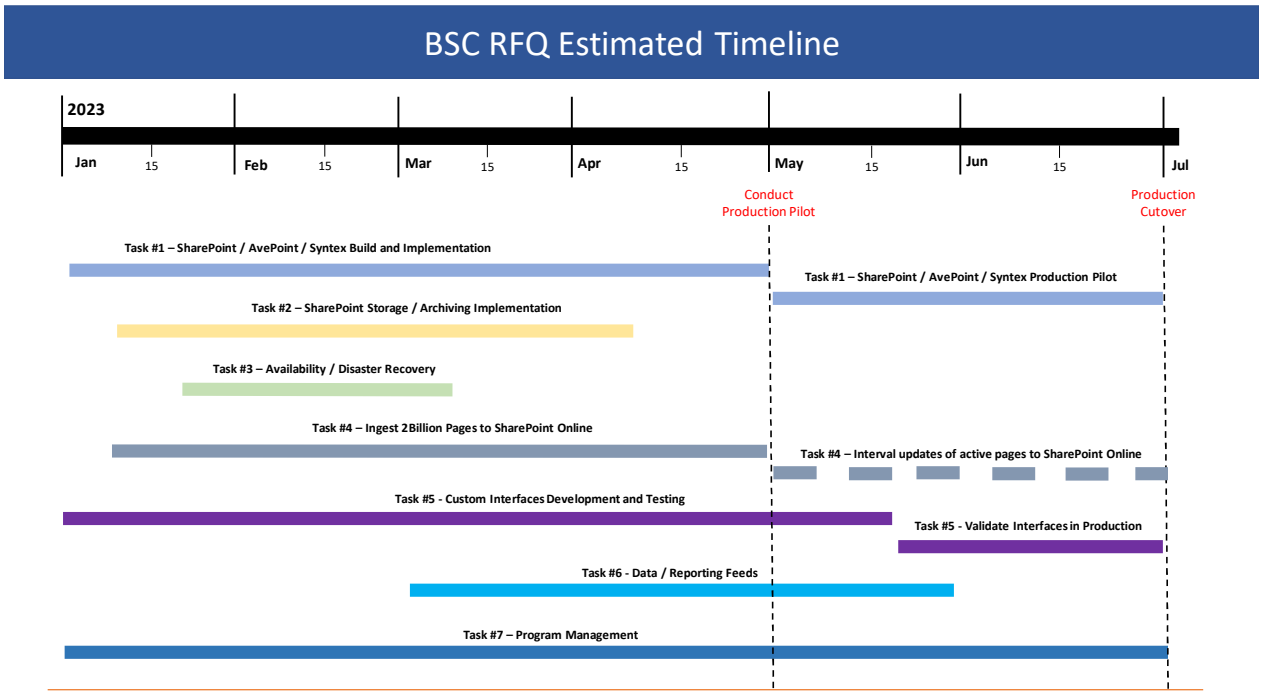
## 3.5 Project Schedule

Below are the proposed estimated timelines for each Task based on the information provided in BSC's RFQ.

NathCorp understands BSC's urgency to have a fully capable production ready solution by April 28, 2023. However, NathCorp is recommending targeting April 28, 2023 implementation as a production pilot to have time for both NathCorp resources and BSC's resources to test all functionality of the IDMS solution including the custom interfaces before moving to a full production cutover by June 30th, 2023.

Although this approach extends the desired timeline, we believe it is a prudent approach that will substantially reduce overall project risk, ensure minimal to no production impact and create the best opportunity for project success and cost management.

NathCorp will run many Tasks in parallel to help expedite the delivery to production. Once NathCorp has a better understanding of BSC's environment and has confirmed detailed requirements and success criteria, changes may be made to the estimated timeline.



## 3.6 NathCorp Roles and Responsibilities

| Role | Responsibilities | % Allocated | Location |
|---|---|---|---|
| **Program Manager** | ▪ Primary point of contact for BSC team<br>▪ Responsible for managing and coordinating the overall project delivery working with the assigned BSC Project Manager<br>▪ Coordinates and communicates with BSC PM to facilitate workshops, meetings, etc.<br>▪ Develops and owns the detailed master project plan<br>▪ Owns status reporting, tracking issues and risks; conducts weekly status meetings<br>▪ Contributes to communications to BSC stakeholders; conducts monthly stakeholder meetings<br>▪ Responsible for resource allocation, risk management, project priorities, and identifying resource needs<br>▪ Jointly works with assigned NathCorp project managers to Task 1 and Task 5 to align master project plan, schedule, etc. | 100% | Remote (on-site as needed) |
| **Project Managers** | ▪ The primary point of contact for the assigned delivery Task<br>▪ Manages day-to-day activities of the NathCorp resources assigned to the Task<br>▪ Develops and manages the detailed project plan for the assigned Task<br>▪ Coordinates the activities of the NathCorp Team to deliver deliverables according to the overall program schedule | 100% | Remote (on-site as needed) |

| | | | |
|---|---|---|---|
| | ▪ Responsible for resource allocation, risk management, project priorities, and communication for the assigned Task<br>▪ Coordinates the activities of the team working with the Program Manager and Delivery Architect to deliver deliverables according to the project schedule | | |
| **Delivery Architect** | ▪ Serves as primary point of contact for BSC architectural and technical resources<br>▪ Provides overall technical design quality for the IDMS Solution<br>▪ Reviews technical designs and implementation<br>▪ Identifies and documents technical risks and issues<br>▪ Serves as escalation point for technical decisions or issues<br>▪ Identifies and communicates recommended patterns and practices to the SharePoint and Application Development teams | 100% | Remote (on-site as needed) |
| **Industry Expert** | ▪ Reviews functional and technical designs as needed<br>▪ Identifies and consults on application patterns and implementation plans | <5% | Remote (on-site as needed) |
| **Disaster Recovery Architect** | ▪ Facilitates all technical dialogs/discussions with customer<br>▪ Reviews BSC DR and Availability Requirements<br>▪ Validates IDMS Architecture meets Dr and Availability Requirements<br>▪ Documents designs and deployment mechanisms<br>▪ Supports the deployment of UAT and production environments | 100% through 2 Months<br><br><5% for remaining | Remote (on-site as needed) |

| | | | |
|---|---|---|---|
| **AvePoint Storage Architect** | ▪ Leads technical activities related to SharePoint / Azure Blog Archiving requirements<br>▪ Puts together the archive / storage architecture<br>▪ Validates architecture meets requirements in test environment<br>▪ Leads the production storage deployment solution | 100% through 3-4 months | Remote (on-site as needed) |
| **Tech Lead (SharePoint)** | ▪ Coordinates technical activities related to Syntex and SharePoint<br>▪ Works with the Architect on requirements and architecture/design activities related to Syntex and SharePoint<br>▪ Manages day-to-day development activities related to SharePoint / Syntex<br>▪ Participates in test case reviews related to SharePoint / Syntex<br>▪ Oversees quality assurance (QA) technical deliverables from team resources related to SharePoint / Syntex<br>▪ Creates technical specifications related to SharePoint / Syntex<br>▪ Facilitates all technical dialogs/discussions with customer and onsite lead related to Syntex and SharePoint<br>▪ Assures team follows defined process and standards.<br>▪ Reviews UAT scenarios | 100% | Remote (on-site as needed) |
| **Syntex Consultants** | ▪ Performs Syntex OOB configuration / ML activities in support of the features and releases in scope for the project<br>▪ Resolves issues | 100% | Remote |
| **Workflow Consultants** | ▪ Implements customized workflows using Power Automate / Power Apps configuration activities in support of the | 100% | Remote |

| | | | |
|---|---|---|---|
| | features and releases in scope for the project<br>▪ Resolves issues | | |
| **Document Migration Consultants** | ▪ Implements customized migration of documents and related metadata from BSC source location to SharePoint Online using Bittitan Tools in support of the migration requirements in scope for the project<br>▪ Resolves issues | 100% through 4 months<br><br><20% for remaining | Remote |
| **Development Lead (Azure)** | ▪ Coordinates technical activities related to Azure technologies<br>▪ Works with Architect on requirements and architecture/design activities related to Azure technologies<br>▪ Leads design activities related to Azure technologies<br>▪ Manages day-to-day development activities related to Azure technologies<br>▪ Participates in test case reviews related to Azure technologies<br>▪ Oversees quality assurance (QA) technical deliverables from offshore team related to Azure technologies<br>▪ Creates technical specifications related to Azure technologies<br>▪ Builds master to manage various builds.<br>▪ Assures team follows defined process and standards<br>▪ Reviews UAT scenarios | 100% | Remote (on-site as needed) |
| **Azure Developers** | ▪ Performs development activities in support of the features and releases in scope for the project<br>▪ Resolves application issues | 100% | Remote |
| **Test Leads** | ▪ Develops and owns the testing strategy<br>▪ Manages the build process<br>▪ Conducts tests to accurately determine the status of the solution development | 100% | Remote |

| | | | |
|---|---|---|---|
| | ▪ Signs-off on when the solution meets specification requirements | | |
| **Testers** | ▪ Performs integration and component testing<br>▪ Helps development team reproduce bugs/debugging<br>▪ Provides support for the Test Lead providing clarifications/ coordinating with NathCorp development team | 80% | Remote |

# 4.0 NathCorp References

The following may be contacted for reference on NathCorp services.

**3M Corporation**

Maplewood, MN

Paul Pottorff, Senior Cloud and DevOps Architect

Mobile: 206/ 992-7749

ppottorff@mmm.com

Number of years NathCorp client – 10 years (2012 – present)

3M is a publicly traded manufacturer with revenues of approximately $35 billion and 95,000 employees worldwide.

NathCorp was engaged to provide offshore application development and Managed Services to 3M's Digital Product Center of Excellence (DPCOE) team in support of application development and enhancement for multiple 3M business units; 3M realized over 3X productivity rate as compared to US-based resources and costs. Highlights of this long-term engagement include:

- Over (20) applications developed, including critical SafeGuard product authentication application (used on over 2 million 3M products monthly)
- Over (35) applications enhanced and supported

The SafeGuard product authentication application uses a complex algorithm to create unique identifying keys applied to 3M products to ensure authenticity and fight counterfeit product entering the market from various offshore manufacturing sites. The application is integrated with their entire SAP environment and deployed in (19) plants globally. 3M estimates direct savings of over $5 million annually in counterfeit product identification, not including the value of reputation protection. See also as an example: Over 65K Counterfeit 3M Masks Seized in Chicago | U.S. Customs and Border Protection Preview (cbp.gov)

**Universal Music Group (UMG)**

2100 Colorado Ave, Santa Monica, CA 90404

Greg Corgain, Vice President – Technology Infrastructure

Mobile: 626/ 644-3885

Office:`818/ 286-6808

Email: Greg.corgain@umusic.com

Number of years NathCorp client – 6 years (2016 – present)

UMG – "The World's Leading Music Company" is the largest music company in the world and has recently been taken public. The company has approximately 4 million owned and administered titles, manages 250 artists and brands and owns 50 music labels. Their stock is traded under the symbol UMG.AS and their annual revenues are approximately $9 billion and they have 8,300 employees.

NathCorp has provided a variety of services to UMG, including:

- Global Active Directory (AD) upgrade (2016) – services were provided across the globe to upgrade the entire UMG AD infrastructure to the latest version; UMG incurred no downtime as part of this upgrade.
- Quest Active Roles Server (ARS) replacement (2017) – UMG was running an older version of ARS and facing a large license upgrade charge for a product they planned to obsolete. NathCorp developed an interim replacement application – Attribute Compliance and Reporting Application (ACRA) – to provide key services such as user creation, modification and deletion. ACRA acted as middleware between ServiceNow (SNOW) and Active Directory, taking automated user and account creation requests from SNOW, validating key components of the data provided, and taking the necessary actions in AD – a web-based user interface was also made available for manually entry, when needed. We created a SharePoint based user-maintained Rules Engine to allow UMG to adapt ACRA functionality as business rules changed to ensure they were not required to pay NathCorp to implement changes. ACRA also created the necessary transaction logs to satisfy audit and compliance requirements and fed those logs to Splunk as needed. The ACRA tool was originally planned as an interim solution for 6-12 months; the tool ran for over 5 years with over 99.5% uptime.
- Tier 2, 24x5 Active Directory, Messaging and Access Management (2017 – ongoing)– NathCorp provides a set of offshore resources to provide global 24x5 support to manage approximately 150 daily incidents and tasks across multiple time zones and for all UMG offices and users. We monitor performance weekly against SLAs and meet weekly with the UMG operations team to discuss tickets, identify issues or opportunities for improvement, etc. As part of this service, we also provide "White Glove" services to a group of (12) key executives, including their Chairman and CEO. Our typical response time to White Glove requests is less than 5

minutes, with resolution in 10-15 minutes, regardless of if the request is made during contracted coverage hours or during our on-call (weekend) hours.

- We have also conducted a variety of smaller projects for UMG including tenant to tenant email migrations, Contingent Worker password resets (involved working with approximately 3,000 Contingent Workers to reset their passwords), Service Account password resets (approx. 1,000 accounts), etc.

**Hawaiian Airlines**

3375 Koapaka St, Suite G350, Honolulu, HI 96819

Ken Rewick – Vice President of Flight Operations (Retired)

Mobile: 808/ 228-9643

Email: kerewick@hawaiian.rr.com

Number of years NathCorp client – 7 years (2014 – 2021)

Hawaiian Airlines (HA) is the largest operator of commercial flights form the continental United States to Hawaii. They operate a fleet of approximately (60) aircraft and serve over (100) destinations worldwide.

NathCorp was contracted with Hawaiian to implement their Electronic Flight Bag (EFB) program as part of HA's eFlie program – a broader cockpit connectivity initiative. HA is the first airline in the world to have real-time, IP-based cockpit connectivity (via satellite) isolated completely from any passenger compartment network communications.

The overall goal of HA's EFB program was to eliminate the need for paper manuals to be carried by pilots and remove the duplicate manual set from each aircraft – this resulted in saving over $1 million annually in fuel cost (achieved by removing approximately 400 pounds in weight from each flight), eliminating the need for resources to continually update manuals in each aircraft, and eliminating the need for pilots to be continually concerned about ensuring flight manuals were up to date – typically, flight manuals and flight communications are issued several times per week. All goals needed to be achieved while also ensuring 100% compliance with FAA regulations; HA was subject to inspection at any time by an FAA inspector and, if their manuals were found to be non-compliant (out of date, or not enough copies on the aircraft), they would not be allowed to fly the aircraft, costing HA approximately $300-$400,000 per incident.

Additionally, HA moved from manual flight navigation charts to EFB-based navigation charts.

NathCorp provided a variety of services to HA as part of the EFB program.

- We delivered an EFB as a Service (EFBaaS) program to HA which included the distribution and management of 2,000 Microsoft Surface devices to their entire pilot community. We

provided Tier 2 24x7 support and created and managed the necessary environment to ensure the domain was isolated for security purposes and remained compliant at all time with not only FAA requirements, but also key HA security requirements to ensure any part of the ecosystem (tablet, satellite connection, cockpit connection, etc.) could not be hacked, regardless of location. In the event a pilot device was suspected of compromise, we immediately wiped the device and disconnected it form the network to always ensure ecosystem integrity.

- We developed the NathCorp "DocSync" application to distribute flight manuals, flight manual updates and various Flight Operations communications to approximately 2,000 pilots located worldwide. We were able to distribute and track a variety of file formats including pdf, exe, tif and other file types. Critical functional features of the application included:
    - The ability to report real time status of both the tablet and the manual set contained on the tablet to always ensure FAA compliance
    - The ability to refresh manual updates or manual sets in the event of accidental deletion by the pilot
    - The ability to automatically monitor for a device "online" and distribute manual updates as necessary to ensure compliance; this included the ability to alert on non-compliant devices
    - The ability to ensure manual updates were NOT applied during critical phases of flight, risking lack of tablet availability for navigation charts, airport maps, etc. We used a connection to the aircraft data bus to sense "weight on wheels" and "door closed" and pass this status to the DocSync agent on the tablet to temporarily suspend updates and always ensure tablet availability during flight, while preserving the tablet's ability to maintain an active IP-connection during flight and receive dispatch updates, upper air updates for flight path optimization, etc.
- We integrated with HA's Dispatch system to deliver electronic flight plans to the designated Captain and First Officer for a particular flight two hours prior to takeoff. This included acquiring the flight plan from the dispatch system and converting the plan to a separate format for ingest by the tablet's navigation application. This was a time critical function requiring error free delivery of the flight plan to ensure there was no flight delay. Our process included tracking and validation of flight plan integrity at all steps.
- We worked with HA and a German software company to integrate real time flight path tracking to optimize fuel consumption and passenger comfort. Pilots were able to request flight path deviations from air traffic control to reduce fuel consumption. Fuel savings were estimated at over $2 million per year.
- When the COVID-19 pandemic hit in early 2020, HA was significantly impacted. Although under no legal or contractual obligation to do so, NathCorp worked with HA to modify our contractual agreements to accommodate the drastic change in their business.

**Western Digital Corporation**

3355 Michelson Dr., Irvine, CA 92612

Dave Schira – Global Head of Infrastructure Services, Architecture and Automation (Mr. Schira left Western Digital in January 2022)

Mobile: 503/ 709-7492

Email: dave@14ourfamily.com

Number of years NathCorp client – 6 years (2016 – present)

Western Digital (WD) is a publicly traded manufacturer of computer storage with annual revenue of approximately $19 billion and 65,000 worldwide employees.

NathCorp has engaged in a variety of projects for WD, including the following:

- Enterprise build of worldwide SharePoint Online (SPO) platform. WD migrated from Jive to SharePoint and NathCorp was chosen to provide all the necessary design and implementation services to provision a SPO platform to support 30,000 – 40,000 active users globally. We conducted discovery meetings and workshops, defined and documented requirements, and built and tested the platform to ensure its ability to scale to the desired user count, and ensure the design reflected the level of availability required by the global user community. A key focus of our work was to ensure the appropriate information architecture and governance was in place so WD would not experience the current site "sprawl" it had in the Jive environment. We also designed, configured and implemented environment governance using Desired State Configuration (DSC) from Microsoft as the foundation for monitoring, managing and approving configuration changes. Authorized changes were processed via an Azure DevOps process focused on "configuration as code" and any unauthorized changes were identified and automatically returned to their prior state by DSC monitoring – the necessary stakeholders were notified of the incident and a full and complete audit log was established and maintained by DSC, including information on administrators making the changes.
- Worldwide Active Directory (AD) upgrade. This was our first engagement with WD and has been compared to "changing the engines in flight" – upgrades were made to an active production AD environment, many times during working hours due to the global nature of WD's business. The upgrade was achieved with zero downtime and many of the services were automated to make implementation more efficient (EG: AD server build was completely automated and took 5-10 minutes). This approach required meticulous preparation and extensive testing to ensure no impact to the production environment and NathCorp provided all services for these tasks. Finally, the Forest Functional Level was raised with no impact to the organization.

- Replacement of VMWare WorkSpace One with Microsoft InTune and related products. This project focused on migrating approximately 16,000 mobile users from WorkSpace One to InTune; WD was using WorkSpace One for both SSO and device management. The key challenge was designing a migration plan to allow 16,000 users and approximately 400 applications to co-exist during the migration period – approximately 4 months – while also ensuring a key calendar deadline was met to allow WD to avoid a large license renewal expense.
- Enterprise mail system health check and remediation. WD has grown their business significantly by acquisition. Many of these acquisitions were allowed to exist separately from the primary WD mail domain. NathCorp was engaged to perform a health check of the overall mail environment, including a focus on email security and SPF record integrity. We identified (75) key improvement items across (5) focus areas requiring attention and prioritized each improvement item for risk to the business and overall impact and benefit to WD. Several of the improvement items were immediately implemented to ensure WD's mail environment was secure and appeared "clean" to external companies and users.

Other key client engagements include:

| Client | Projects | Approximate Revenues, Approximate Employee Count, Relationship Length |
|---|---|---|
| Publicly traded manufacturer of construction, agricultural and mining equipment (durable goods) | • Development of global (multi-lingual) dealer / farmer portal for delivery of machine health reports "on demand"; includes data analysis, data lake creation and management, development of portal APIs, Power BI report development and delivery | • $25 billion revenues<br>• 6,500 employees<br>• 1-year relationship |
| Publicly traded medical device manufacturer | • Application packaging and distribution services for Windows<br>• Hyperion / Oracle financial application upgrades distribution | • $5 billion revenues<br>• 14,000 employees<br>• 6-year relationship |
| Provider of e-library books | • Managed services for the entire Azure-based environment for e-library on demand program<br>• Architecture assistance, development and enhancement of e-library application | • Private equity owned – do not disclose revenues<br>• 2,500 employees<br>• 12-year relationship |

| | | |
|---|---|---|
| Large national insurance company | • Company-wide AD upgrade<br>• Company-wide SCOM upgrade<br>• Company-wide Teams implementation<br>• Company-wide migration of on-premise email to Exchange online | • Privately held – do not disclose revenues<br>• 16,000 employees<br>• 6-year relationship |