



Jeys Consulting Group

Techfite Emerging Technology Proposal

C850: Emerging Technologies

Chris Jeys

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A. TECHFITE - ORGANIZATIONAL NEED

Techfite is an organization poised to partner with NASA and other space programs to lead humanity on its evolutionary journey towards safe space travel. Techfite's innovative medical technology will be the critical factor in bridging the gap between space travel we see today to the point where space travel is commercially and economically feasible for most of the world's population.

To this point, Techfite's need to innovate and scale to meet this industry challenge must be embraced for the organization to thrive into the future. Understanding the current business needs and with research, Jeys Consulting Group recommends utilizing Amazon Web Services (AWS) as a partner in the future to meet the growing and ever-changing demand placed upon the space industry.

There are several challenges Techfite can overcome with the use of AWS services. The first business use case Jeys Consulting Group recommends is addressing the bottleneck with the current on-prem storage solution that can seriously hamper Techfite's potential for growth. AWS S3 service provides unlimited and scalable storage to meet Techfite's need to store logs and files that include security and governance no matter the space program, country of origin, or specific organizational requirements.

B. TECHFITE - SOLUTION PROPOSAL

Amazon Simple Storage Service (Amazon S3) is a storage service that will allow Techfite to scale and meet industry demands quickly. In addition to Amazon S3's scalability, data availability, security, and performance are additional features and benefits built directly into a service that are all delivered in a means that is efficient and optimizes storage costs. Organizations across many industries realize these benefits.

One such example of Amazon S3's successful utilization is at GE Healthcare. Amazon S3 is at the heart of GE Healthcare's cloud deployment for their storage of critical data and patient information ("GE Healthcare," n.d.). Now GE Healthcare is not the only organization recognizing AWS for services like S3. AWS has been named a Leader in Gartner's Magic Quadrant (Bali, Gill, Ji, Smith & Wright, 2021) as a cloud service provider based on their broad-based IT services supporting organizations from start-ups to large-scale corporations. These services also include AI/ML services, like AWS Sagemaker, which Techfite can utilize as the need for this emerging technology grows.

C. TECHFITE - ADOPTION PROCESS

An industry-leading adoption process called STREET will be used in this proposal to help accelerate the implementation of the proposed Amazon S3 service to address Techfite's growing storage needs. Each letter in the acronym, STREET, is a separate phase of the adoption process, and each step of that process will be identified below (Hackmeyer, 2017).

Scope – It is essential to determine and agree upon the scope of this current initiative. The proposed Amazon S3 solution will resolve the need for storing log files in the current on-prem environment. However, this does not address the storage of user data files, or organization SharePoint directories, for the business' user base.



Track – To propose and implement the best solution that meets Techfite’s needs, many technologies were researched, evaluated, and thoroughly vetted. In addition to Amazon S3, Azure Blob Storage, and Google Cloud Storage, to name a few.

Rank – Comparing the three major CSPs and their services portfolio utilizing Gartner’s Solution Scorecard, AWS stands above the other competitors with a 94 out of 100 (Leong & Wong, 2021). Microsoft Azure came in second with 78 out of 100 (Gore, Leong, Petrosyan & Wong, 2020), with Google Cloud third with 71 out of 100 (Leong, Meinardi & Wong, 2020).

Evaluate – The proposed solution’s benefits, risks, and costs have been evaluated. While there may be a risk of developing a storage solution from a single CSP like AWS, the benefits provided by AWS S3 far exceed this minor drawback. With a total commitment to utilizing AWS resources at an organizational scale, tremendous savings can be achieved due to AWS’s ability to achieve massive economies of scale with its worldwide cloud ecosystem.

Evangelize – It is critical that the Techfite community understand the proposed solution, how they benefit from it, and how the entire organization will be allowed to overcome the current infrastructural shortcomings to be forward-thinkers and emerge as a leading organization in the space-medical industry. Jeys Consulting Group will drive this process to have a clear and concise communications plan that will be widely available for team members to review. In addition, weekly meetings will be conducted to review and continuously update the communications plan. Finally, an open-door policy will also be implemented for individual ad-hoc Q/A meetings for users and stakeholders with any new or pressing questions or those who do not tend to speak up in group settings.

Transfer – Jeys Consulting Group will initiate the handover and transfer of the proposed solution with specific training recommendations for users and stakeholders. Jeys Consulting Group or Techfite’s training team members can conduct the proposed training. The training cadence can be built and tailored based on the needs of Techfite.

D. TECHFITE - TECHNOLOGY IMPACT

Techfite can expect an immediate positive impact upon the implementation of this proposal. With AWS S3, data can be quickly and easily migrated to a single ‘trusted source’ of information, facilitating the adoption of cloud technologies and decommissioning outdated on-prem technological solutions.

Due to the shift towards AWS S3 and cloud technologies, adjustments will be needed at the business level, which can cause a negative impact. With the adoption of the AWS S3 service, businesses allow their users to quickly spin up buckets and upload files at an unprecedented scale. There is a need to monitor and control costs for all current and future Techfite employees. Another AWS service named AWS Organizations can be utilized to monitor department usage of AWS S3 and other AWS services and control costs based on budgets determined by Techfite business leaders.

Another adjustment will be required that may negatively impact Techfite’s users. With the adoption of any new technology, there is the need to set up identity and authentication to allow access.



AWS Single Sign-on (SSO) can be implemented to use the existing identity source used by Techfite. This will ease user and admin password management and provide the flexibility to utilize existing identity sources while also having the option to migrate to other identity sources, which future proofs the proposed solution.

E. TECHFITE - TECHNOLOGY COMPARISON

As with all new implementations, some pros and cons need to be weighed when choosing between different technologies and vendors. To this point, listed below is a high-level overview comparing the proposed solution utilizing Amazon S3 versus upgrading the existing on-prem storage solution.

	Advantages	Disadvantages
Amazon S3	<ol style="list-style-type: none"> 1) Future proof of storage solution in the cloud to allow Techfite to be flexible and scale as business demand dictates 2) IT resources can be redirected towards innovation and creation of new space-related medical technology rather than supporting infrastructure 	<ol style="list-style-type: none"> 1) Implementations of new technologies can have a learning curve, leading to slow adoption and buy-in from the user base. 2) Network latency, along with ingress and egress charges, are new factors to be considered with the new Amazon S3 implementation
Upgraded on-prem storage solution	<ol style="list-style-type: none"> 1) With the upgrade of existing on-prem storage solutions being implemented in the past, staff will be comfortable and familiar with this process 2) Techfite retains complete control of infrastructure, hardware, networking, etc. 	<ol style="list-style-type: none"> 1) Planning and implementation of on-prem storage solutions can be time-consuming and inaccurate in the prediction of workloads which can lead to over-provisioning or under-provisioning, which can stunt organizational growth 2) Operational expenses and resources will be spent to keep the business “lights on” rather than passing that cost to the cloud service provider and redirecting it toward research and development

F. ADOPTION SUCCESS

To prove the capability of the proposed Amazon S3 solution, tests will be conducted and compared to the baseline captured by Techfite. These tests will utilize the AWS Distributed Load Testing solution to simulate workloads of various sizes and time periods. As part of this test, workloads simulating growth at the 30-day, 60-day, 90-day, and 120-day intervals, will be the timing benchmarks. Data will be captured during these timing benchmarks based on the success criteria listed below. These



tests will demonstrate to Techfite the improved performance and potential cost savings of the proposed solution. If testing fails, all existing network and infrastructure documentation have been captured to revert the storage solutions to their previous state.

Techfite Baseline – 10,000 logfiles manually per week, 30% success rate in identifying signature patterns, maximum of 4TB of storage allocated locally.

Success Criteria – 15,000 logfiles per week, 50% success rate in identifying signature patterns, cost savings of 33%



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