

Andrew Theken

Greasing the wheels since Y2K.

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Experience:

Postmark/Wildbit, LLC - June 2014 to September 2021

Software Architect

My capstone achievement at *Wildbit* was leading a migration of *Postmark* from on-premises to AWS. Ultimately, we accomplished this with *zero* downtime and *zero* customer-support cases. This effort eventually led to the overall reliability of Postmark reaching 99.999% uptime on public-facing services. [I wrote about this work on the Postmark blog.](#) The following are some additional details, and other accomplishments from my tenure at Wildbit:

- Drove two-year process to split monolithic codebase into decoupled Lambda & Docker-based services, incorporating the following qualities:
 - Adopted 12 Factor App practices for new services.
 - Designed and reviewed systems for idempotence, substantially improving system reliability and “self-healing” characteristics.
 - Substantially improved operability of the system, especially with relation to observability and monitoring.
- Recommended and implemented changes to Elasticsearch configurations that reduced RAM utilization by 80% and storage by 90%, while maintaining all customer-facing functionality. These changes resulted in corresponding improvements to cluster load and overall service availability.
- Recommended and implemented changes that resulted in a 90% reduction in core database load:
 - Implemented read-write splitting for better horizontally scalability/availability of core databases.
 - Logically and/or physically isolated datasets to distinct RDS clusters, based on service domain.
- Adopted Kafka for event storage and processing, enabling external teams to build abuse detection systems that could be isolated from the core product.
- Planned and executed migration of Elasticsearch from version 1.5 to 7.8 with *zero* downtime or service interruption.
- Championed automation and process improvements, allowing the team to build and evolve the product through safe and repeatable processes. Our tools of choice were *Terraform*, *Ansible*, and *CircleCI*.
- Adopted *Prometheus* and *Grafana*, allowing the team to consolidate and tune monitoring and alerting.
- Adopted *HAProxy* and *Keepalived* for High Availability and granular access control for both internal and public facing services.
- Implemented numerous features and fixes for Postmark, including:
 - Email templating system with a Mustache-like language parser in C#.
 - Built a geo-distributed, highly-available, click tracking system.
 - Made many parsing, performance, and encoding enhancements to core mail processing services.
 - Implemented many enhancements that improved performance, availability, and determinism of the public API.
 - Implemented first version of internal deliverability metrics dashboards for abuse detection/mitigation.
- Managed (and participated in) on-call rotation; Was the final escalation point for especially pernicious service issues.
- Authored and maintained official client libraries for the Postmark API, including:

- C#
- TypeScript/JavaScript
- PHP/Swiftmailer/Laravel
- Provided design and code reviews, which were especially focused on idempotence, 12 Factor App, SOLID principles, and appropriate automated testing.
- Drove changes that reduced alerting volume from 100's/week to ~2/week.

Novelist/EBSCO Publishing - August 2009 to May 2013

Software Architect

- Overhauled business-critical ETL processes, yielding the following benefits:
 - Reduced a 40 hour, labor-intensive process to a 10 hour, automated process.
 - Produced more reliable, maintainable, application code than previous ETL toolchains.
 - Allowed for greater efficiency in organization due to better visibility of "live" data.
 - Provided greater flexibility in output formats, allowing for opportunities to remove additional legacy code in the future.
- Thoroughly documented all application code written, allowing for better readability and maintainability.
- Provided enhancement and debug support for all Novelist products.
- Systematically eliminated many external dependencies throughout the codebase making application code more portable and less prone to external breakage.
- Collaborated with stakeholders to design and present conceptual documentation that shaped the vision for Novelist's upcoming products.
- Presented technical talks on relevant topics to co-workers in order to improve team productivity.
- Independently researched and evaluated new technologies to identify resources that would potentially benefit Novelist.
- Led major refactoring of one of the company's SaaS products to isolate content from presentation at the API-level - enabling the product to be adopted by a wider variety of customers.

InfoStrength, Inc. - January 2008 to July 2009

Software Developer

- Participated in the Software Development Lifecycle, including maintenance of existing product, gathering of requirements, designing, documenting, implementing, and testing of the next major version of the product.
- Updated the existing application from Asp.Net 1.1 to Asp.Net 2.0 and applied standards and technologies including:
 - .Net 3.0 & .Net 3.5 extension libraries
 - AJAX & JSON & jQuery
 - XHTML and CSS
 - Web Services
 - XML transformation via XSLT
- Contributed at every level of the application from the data access layer to presentation layer in order to improve performance, code quality, and clarity of intent.
- Interfaced with customers to resolve incidents related to the current version of the product as needed.
- Managed windows domain servers and provided other technology support as needed.
- Informally mentored co-workers on best practices for Object-Oriented Design including:
 - Dependency Injection
 - Design Patterns
 - SOLID principles

DeJong, Inc. - March 2002 to December 2007

Systems Developer

- Designed, developed, and documented C# WinForms applications for non-technical end users.
- Developed various web-based tools including:
 - Mapping and report generation portal in ASP.Net (C#).
 - Content management system.
 - Time and expense tracking system.
 - IT work order tracking system.
- Authored statistical extensions for ESRI's ArcGIS via COM Interop.
- Managed company's data services and infrastructure, including:
 - Microsoft Exchange
 - SQL Server
 - IIS
 - Active Directory
 - EMC SAN technology
 - Windows Clients
 - VPN
- Documented IT processes and policies for technical *and* non-technical staff.

The Ohio State University - September 2000 to August 2002
Student Systems Administrator & Campus Webmaster

- Maintained multiple computing centers, each consisting of 30-60 seats (Mixed Mac/PC).
- Provided troubleshooting and repair of machines to multiple departmental offices.
- Rolled out multiple labs.
- Designed and implemented the website for a regional campus by working with the campus Art Director and IT staff.
- Provided updates and maintenance to the regional campus website.
- Developed a web-based work order system using ASP and ODBC to connect to Access.

Superpowers:

- Thoughtful, empathetic, and effective communicator.
- Desire and ability to build consensus and vision across a team.
- Deep understanding of SOLID, 12 Factor-App, and "Cloud-native" development practices.
- Ability to thrive in learning the arcana of complex protocols/systems. At Postmark, this meant learning and implementing an *absurd* amount about how email works, including the underlying protocols and standards (i.e. DNS, SMTP, and structure and encoding of mail messages).
- Code spelunker - extensive experience navigating & maintaining code for multiple languages & platforms.
- Extremely knowledgeable about text encodings and a spidey-sense for when and where encoding/interop issues creep into systems.
- Extensive experience and comfort with all major operating systems.

Competencies:

AWS	Data Stores	Tooling & Operations	Languages
Lambda ECS/ECR EC2 (including VPC management) RDS (Aurora) DynamoDB ALB/NLB S3	Kafka Elasticsearch MySQL RabbitMQ SQS SQL Server SQLite	Docker Grafana Prometheus Terraform Ansible HAProxy Postfix PowerMTA Xen Hypervisor Jenkins Bash & Powershell	C# TypeScript & Javascript Objective-C/Swift SQL Ruby Java PHP HTML/CSS

Education:

Bachelor of Science, Geographic Information Systems
The Ohio State University - March 2005

Service, Honors, Hobbies:

- On-going release of open source code and projects on [GitHub](#).
- Volunteering with [TinyWPA](#) to build community landscape and woodworking projects.
- Continued support and involvement in Habitat for Humanity.
- Implemented a (formerly) popular MongoDB open source library, [NoRM](#).
- Attained Eagle Rank, Boy Scouts of America.
- Elected by peers as senator of Undergraduate Student Government in college for two consecutive years.
- “Maker,” including woodworking, CNC/Laser/3D printing, and welding.