Mark Montague
DevOps Manager

Skills mind-map (central node: Mark Montague):
- **Cloud Platforms**: GCP, AWS, Linode
- **Kubernetes**: Rook + Ceph, Custom Operators, Helm, Google Kubernetes Engine, Red Hat OpenShift, kubeadmin
- **DevOps**: Terraform, CI/CD, GitOps
- **Management**: Customer Relations / Support, Mentoring, Performance Management, Hiring / Recruiting, Proposals and Report Writing, Budget and Finance
- **Development Platforms**: Python, NodeJS, PHP / LAMP, Java
- **Web Hosting Architecture**

Unique Value Proposition

I enable employers to design and deliver high-value Cloud-Native services at reasonable cost by combining my broad technical and managerial expertise with my deep understanding of customer and business needs.

Experience

University of Michigan			1995 – present

Manager	Web Hosting Team	Information and Technology Services	2018 – present

- Provide web hosting services (2,200+ enterprise web apps / sites, 23,000+ individual websites).
- Modernize legacy services, reduce technical debt, and retire/replace obsolete services.
- Manage 6 - 7 FTE, 17 services, 124 VMs

- Provide end user support for Kubernetes/OpenShift.
- Migrate VM-based services to containers.
- Operate, support, and modernize the university's SSL certificate service (4,400+ certificates).
- Managed Information Services team 2018-2019 (+4 FTE)

Manager	IT Advocacy and Research Support	College of Literature, Science, and the Arts	2018
HPC Consultant	IT Advocacy and Research Support	College of Literature, Science, and the Arts	2011 – 2018
Manager	Enterprise Email and Collaboration	Information and Technology Services	2010
Manager	Web Hosting and Database Team	Information and Technology Services	2006 – 2010
Manager	Mac / Unix Infrastructure Team	College of Literature, Science, and the Arts	1998 – 2006
Manager	ITCS Contract Services	Information Technology Central Services	1996 – 1998
System Admin	ITCS Contract Services	Information Technology Central Services	1995 – 1998
Co-Founder	IT contracting and consulting	The Xenosync Corporation	1993 – 1995
System Admin	College of Engineering	University of Michigan	1992 – 1993

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Education

University of Michigan   Computer Engineering, Electrical Engineering   1988 – 1991

Professional Training

- Linux Foundation Kubernetes Fundamentals (LFS258)
- 2020 - 2022 Kubecon + CloudNativeCon NA & EU
- Red Hat SELinux Policy Administration (RHS429)

- 2019 Ross Positive Business Conference
- Foundations of Supervision
- Team Leader Training
- ITIL v3 Foundations (including exam)

Skills

Programming: PHP, Python, NodeJS (Express, React), Java, Go, Perl, C, Bash

DevOps: Terraform, CI/CD, GitOps, GitHub, GitLab, Bitbucket

Web technologies: Content Distribution Networks (Cloudflare, Amazon Cloudfront), TLS/SSL, OpenID Connect / OAuth2, JWT, JavaScript (ES6), HTML, CSS, JSON, YAML, XML

Web Content Management Systems: WordPress (including plugin and Gutenberg block development), Drupal, Mediawiki

Security: X.509 certificates (including creating and managing private Certification Authorities), Web Application Firewall management, Distributed Denial of Service protection, SELinux, iptables / Netfilter, BPF, Kerberos, LDAP, OWASP, Compliance (HIPAA, FISMA, FERPA, PCI DSS, CUI, NIST SP 800-53)

Testing: Load Testing (LoadView, Locust, Testable, ab, JMeter), End to End Testing (Playwright, Selenium)

Cloud Platforms: AWS, GCP, Linode

Containers: Docker/Podman, Kubernetes, kubeadmin, Red Hat OpenShift, Google Kubernetes Engine, Rook+Ceph, Helm, cert-manager, Velero, Knative, Custom Operators (Operator SDK, Kopf)

Web servers: Apache HTTP Server, PHP-FPM, nginx, Apache Tomcat, F5 Load Balancer (LTM / BigIP), Cloudflare load balancers, AWS Cloudfront + S3, ExpressJS, Electron

Databases: MariaDB/MySQL, Postgres, MongoDB, Redis

Artificial Intelligence: ChatGPT (including API use), GitHub Copilot, Tensorflow/Keras.

Business: Hiring / Recruiting, Performance management, Mentoring, Conflict resolution, Team building, Managing organizational change, Budgeting, Report writing, Proposal writing, Strategic planning, Knowledge management, Continuity / disaster recovery planning, Customer Relationship Management, Continuous improvement

Selected Projects

Outsourcing web hosting services: Service manager and technical lead on a team of 16 people for modernizing and outsourcing university web hosting services. Requirements gathering, proposal writing, advisory group lead, migration planning. Three tiers and six service offerings. First new service rolled out in 2023.

Architect and lead for enterprise load testing service: Created business and budget proposals for a new load testing service for use within central IT, to replace non-standard and fragmented solutions that were being used. Performed a full proof of concept / pilot, vendor evaluation, and roll out of a production service. Realized organization-wide cost savings of 50% while avoiding two major service outages within the first 9 months that would have occurred without the new load testing service.

Moved central web hosting services to new Web Single Sign On technologies: Led the effort to move central web hosting services from web-server level Single Sign On (using a legacy SSO technology) to web-application level authentication using OpenID Connect (OIDC) and SAML2. Worked extensively with web application/site owners university-wide to assist them in making this major architectural shift. Wrote a custom WordPress plugin to meet the university's business needs that are not met by other open source or commercial OIDC plugins.

SSL Certification Authority certificate transitions:
- **Root certificate replacement:** Led a multi-team project to successfully move the entire university to a new certificate chain to avoid disruption to IT services when the old root and intermediate certificates expired. Wrote custom scanning and notification software to ensure all at-risk certificates university-wide were identified and replaced.
- **Intermediate CA replacement:** (in progress) leading a project to coordinate switching to a new intermediate certificate due to the old one expiring in October 2024. Includes switching the university to new ACME endpoints that issue certificates signed by the new intermediate certificate.

Modernize certificate management for the university (in progress): Automation with ACME with the university's commercial certificate provider, reduce staffing costs, eliminate service outages due to expired certificates.

Remediation of legacy web infrastructure: Decommissioned enterprise web services server infrastructure for three old operating systems, deployed Red Hat Enterprise Linux 8, increased service resilience and eliminated most outages, performed capacity planning, disaster recovery planning, service portfolio management.

Lead architect / designer for containerized web app hosting solution:
- Created special-purpose backup-and-cloning solution
- Investigated and solved major filesystem performance problem
- Developed self-service UX for web app hosting including writing React web app and OpenShift console plugin proofs of concept.

In-depth understanding of Kubernetes: As a learning exercise, created my own managed Kubernetes solution using Terraform to automatically deploy, manage, and destroy kubeadmin Kubernetes clusters in Google Compute Engine including deploying and configuring the CSI driver for GCE persistent disk volumes.