Rich A. Marino | Platform Engineer

Phone (UK): +44-7888-867565
Phone (US): +1-857-288-8884
E-Mail: q@rm.vg
Web: https://rm.vg/
London, UK | Miami Beach, FL

Passionate, personable technologist and engineer. Quick learner, problem solver, and thrives in high-stakes environment.
Specialties in high performance trading infrastructure, networking, virtualization, and operating systems, both with respect to development and implementation.
Very passionate about making things run as fast and reliably as possible. Expertise in both Windows and Unix environments

Professional Experience

Millennium Management - Systematic Operations Engineer (June 2023 - Present)

- Provided crucial support for a latency-critical options trading strategy, effectively resolving outages and deploying necessary infrastructure in a timely manner.
- Collaborated directly with portfolio managers and quant personnel to design, plan, and build out trading infrastructure.
- Innovatively developed proprietary tools aimed at optimizing workflow efficiency. (C#, Shell)
- Played an integral role in the systematic trading on-call rotation, offering comprehensive support across diverse trading systems.
- Resolved critical trade settlement issues by communicating directly with counter-parties and working directly with FIX protocol messages.

CrowdStrike - Engineer (Consultant) (January 2023 - June 2023)

- Contributed expertise rebuilding virtualization infrastructure that backs hybrid-analysis.com, as well as fixes to kernel-mode Windows driver code.

Robinhood Markets - Senior Client Platform Engineer (Consultant) (December 2021 - January 2023)

- Conceptualized, designed, and executed the deployment of a secure and compliant Windows infrastructure in a previously Mac-only environment.
- Spearheaded the implementation of Microsoft InTune, Azure AD, and Azure VDI from inception to full deployment, ensuring seamless integration and functionality.
- Engineered deployment and process automation for Windows and other systems, streamlining operations and enhancing efficiency across the organization.
- Collaborated closely with security experts to design and implement platform security models based on CIS baselines, ensuring robust protection against potential threats.
- Successfully stabilized, secured, and ultimately replaced a poorly deployed Amazon AWS Workspaces infrastructure used by hundreds of users, mitigating risks and optimizing performance.
- Managed the end-to-end implementation of MDM solutions for macOS, ChromeOS, iOS, and Android devices, ensuring comprehensive device management and security protocols for hundreds of mobile devices and thousands of computers.

D.E. Shaw & Co. - Production Engineer (August 2018 - November 2020)

- Spearheaded and led the overhaul of company-wide monitoring infrastructure, driving the implementation of Telegraf, Prometheus, Grafana, and Microsoft System Center Operations Manager (SCOM) from scratch on both Windows and Linux platforms, resulting in a remarkable 75% decrease in operational noise.
- Assisted in maintenance and diagnostics of UDP multicast market data feed lines.
- Contributed to a high-level ops rotation administering Windows and Linux systems, as well as network infrastructure.
- Assisted in development, implementation, and operation of a new HPC cluster / compute grid scheduling application used across thousands of computers. (Python)
- Led development of low level tooling to investigate Windows driver memory bugs. (C)
- Contributed significant expertise to developing a secure and segregated Linux and Windows computing environment to facilitate trustworthy computing in an extremely untrustworthy environment for a new office in China.

Consulting - Enterprise Connectivity / IT (February 2017 - Present)

- Deployed a high-performance global anycast packet acceleration and content distribution network with dozens of points of presence on 6 continents (AS 207419).
- Developed custom GIS/mapping application from the ground up, including both data and rendering layers.
- Assisted clients with a wide range of IT services, troubleshooting, and implementation.
- Implemented Enterprise connectivity across multiple physical sites.
- Led the design, deployment, and implementation of line of business infrastructure and applications for point of sale.
- Deployed A/V, digital media, and digital signage solutions.

Acuity Brands Lighting - Software Engineer (March 2017 - August 2018)

- Owned and drove development of cloud-first firmware update service
- Implemented a cloud-first firmware update service for embedded products from the ground up. (Azure, .net Core, C#, Web front-end)
- Designed and built an API to allow efficient access to commercial lighting controlled by the nLight protocol. (C++, C)
- Configured and maintained critical product build servers and CI/CD pipelines (VSTS, InstallShield)
- Rebuilt a critical build server, which resolved significant delays and improved development efficiency. (VSTS)
- Implemented JSON parsing on extremely resource-constrained devices.
- Contributed expertise towards integration of a new wireless nLight product into the existing platform. (C#)

Microsoft (May 2015 - Nov 2016)

Windows Fresh Start (Dec 2015 - Nov 2016)

- Played a pivotal role as one of the primary engineers in the conception and execution of the Windows Fresh Start feature, working closely with three program managers and other engineers.
- Contributed significantly to the design and implementation of the feature from its inception to its initial release, utilizing expertise in C, C#, and C++.
- Conducted experimental implementations of automatic user-mode application virtualization and containerization, collaborating with the team to enhance user experience and system performance.
- Contributed to the project's user interface design by implementing various graphical components using C#.

Windows Networking (May 2015 - Dec 2015)

- Led bug fixes across an enormous codebase (Windows) while in charge of maintaining VPN, Enterprise Wi-Fi, and Ethernet features.
- Utilized big data analysis expertise to answer business questions. (SQL, internal technology)
- Designed test software for Hyper-V Software Defined Networking Quality of Service. (Hyper-V, TCP/UDP, C, C++)

Internships

Microsoft Intern Program (May 2014 - August 2014) - Windows Networking

- Developed a Cloud Platform System (Azure Stack) orchestration and management client, utilizing REST/JSON.
- Contributed to Windows NDIS source code, wrote the first network device driver for Windows 10 (C)

Microsoft Intern Program (May 2013 - August 2013) - Windows Networking

- Developed a UDP NAT (Network Address Translator) and Router. (C, C#)
- Created software to orchestrate a dynamic TCP/IP traffic stress test across thousands of VMs and hosts in a multi-tenant environment. (C++)

Microsoft Intern Program (May 2012 - August 2012) - Windows Networking

- Designed and developed an automated test system for Connected Standby low power mode. (C)
- Created tooling to track and graph Windows Connected Standby sleep states, and system power consumption. (C, C++)

Professional, Independent and University Projects

Global CDN and Fast Packet Routing (2022-Present)

- Implemented a private global network utilizing BGP on the internet and OSPF for minimal latency routing of internal and incoming traffic.
- The network facilitates both fast edge content delivery (CDN) as well as providing reduced latency bi-directional communications.
- Implemented a proprietary proxy to route packets onto the internet through the nearest global node.

Windows Kernel-mode Memory Map (C, C++, 2019)

- Implemented a tool that maps kernel-mode memory allocations on Windows to assist in diagnosing kernel-mode memory leaks,

Hidden DNS Services (NodeJS, 2017)

- Wrote an authoritative DNS server that allowed for both normal lookups and steganographic traffic tunneling and data exfiltration.
- Developed a client that exposed a SOCKS proxy that tunneled arbitrary traffic over DNS.
- Developed a client / server application that could provide access to specific web pages as TXT records.

Performant PHP Web Server (2013 - 2014)

- Developed a full, high-performance web server written in PHP.

High Performance University CMS and style sheet (2010-2014)

- Built a content management system to facilitate user uploaded and designed web pages by untrusted parties.

Near Field File Sharing (PHP, Node, 2014)

- Developed software to facilitate quick and easy sharing of files between physically near computers via UDP Multicast or Internet.
- Conducted extensive research into platform-agnostic zero-config communication.

iBeacon payment and location tracking platform (2014)

- Designed and built out an experimental platform for locating customers within a retail environment, tracking their movements, and facilitating payments and interactions with other objects based on location within the building.
- Implemented an iBeacon simulation API and front-end to allow for demonstration and testing of this platform.

Bootable Tor Hidden Site Server (2013 - 2014)

- Created a minimal embedded Linux system that can be booted from read-only media and serve a Tor hidden site, by utilizing the Performant PHP Web Server (mentioned above).

Small Windows 95 (2007, 2010)

- Created a Windows 95 installation that could be booted from floppies without other local storage for running specific embedded applications.
- Componentization and dependency mapping was used to only include components required by the specialized applications that would be used, similar to standard Windows XP Embedded.

Hackathon Projects

WubLink

- Developed backend for an app that allows crowd interaction with a live DJ that authenticates via an audio watermark.

Ultimate Party Playlist

- Developed a web app that analyzed Facebook friends at an event, then created RDIO playlist based on collective interests.

GoToEvent

- Developed a web app that allowed sending and tracking of event invitations via E-Mail, SMS, and telephone calls via Twilio.

Other Experience and Awards

UHACK 2014 - 2nd Place Winner:

- Ultimate Party Playlist

UHACK 2012 - Best Use of Twilio:

- GoToEvent

Engineering Advisory Board (University of Miami)

- Director of Technology (Jan 2011 - May 2014)

Dickinson Scholarship, University of Miami

EPA 608 and 609 Certified Technician

Autonomous System: AS207419 Richard Marino

Education

University of Miami (Miami, FL)
2010 - 2014, Computer Software Engineering / Computer Science

Expertise

Programming Languages	C C++ C# Java Erlang Elixer
Scripting / Query Languages	PowerShell Python PHP Perl Shell / Bash Windows Batch JavaScript SQL PromQL Verilog VHDL
Databases	Microsoft SQL Server Oracle SQL Server PostgreSQL PostGIS / PGrouting sqlite redis MySQL
System Management	Okta Microsoft InTune VMWare Workspace One / AirWatch Azure Virtual Desktops Amazon AWS Workspaces MicroMDM Active Directory Puppet
Servers	VMWare ESXi nginx Apache IIS Citrix XenApp System Center SCCM GitHub Enterprise Microsoft SQL Server NetApp Enterprise Vault
APIs	WINAPI / Win32s MFC Windows Forms WPF WinSock
Development Tools	Git Perforce SVN Vim Xcode Visual Studio Visual Studio Team Services Visual Basic for Applications
Networking	Cisco iOS Ubiquiti UniFi Client / Server programming Low-level stack and driver implementation zScaler
Cloud	Microsoft Azure Amazon AWS Google Cloud DigitalOcean Vultr Twilio Office 365
Networking	TCP/IP UDP VLAN NAT DHCP DNS BGP OSPF PXE
Trading Technology	ION Bloomberg UDP Market Data FIX
Monitoring	Telegraf Prometheus Grafana System Center Operations Monitor
Operating Systems (Development and Administration)	Windows Server Windows 11, 10 Linux (RHEL, CentOS, Debian, Ubuntu) Unix macOS OpenBSD FreeBSD