ANTHONY A. VIRTUOSO

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- PROFESSIONAL I've built my career on the principle that in order to deliver efficient and effective solutions. a technologist should be knowledgeable at all layers of the OSI Model. As a direct result of this SUMMARY: approach, I've cultivated diverse software engineering skills and a pragmatic approach to project delivery. This has allowed me to operate in a wide range of environments including: presenting to CTOs/CIOs, building market data feed handlers, developing low power sensor mesh networks, and scaling server capacity management using Big Data design patterns such as MapReduce. **EDUCATION:** Stevens Institute of Technology Hoboken, New Jersey Bachelor of Science in Computer Science / Concentration in Financial Systems; GPA 4.0 Minor in Humanities / Social Sciences; GPA: 3.9 Graduated with high honors May 25, 2006 Languages: Java, C/C++/C#, SQL, HTML/CSS, PHP, Python, Perl, GWT SKILLS: Technologies: JMS (ActiveMQ), Spring, MVC, Multicast, Grid Computing, Gemfire, Hibernate, Market Data, Hadoop, Hive, Columnar Databases, AWS (EC2, S3, SNS/SOS, EDP, EMR, Redshift, ElastiCache), GWT, TibcoRV Certifications: ITIL Project Management, American Red Cross CPR PATENTS: Nomura Securities (Pat No. 61586296) **Provisional Pending 2011** Principal inventor of 'Multicast Topology Shadowing', an algorithm to generically detect split-brain partitions within distributed systems and large multicast networks. Current solutions require costly hardware or burden the network with added replication. Lehman Brothers (Pat No. 12385846) Patent Pending 2008 Principal inventor of a methodology to facilitate secure RPC Proxy via 3rd Party Token Mediation. The technology is primarily used to enable the firm's automation platform to execute commands on production servers, while limiting both the command authorization and resources consumed. WORK Sept 2013 to Present New York, NY Amazon.com **EXPERIENCE:** Team Lead / Sr. Software Development Engineer Worked as a software development engineer in Retail Systems, building a highly scalable data analytics platform designed to help our business managers identify and capitalize on margin opportunities. The platform is used by several thousand internal users and also serves data to Amazon's external vendor portals. Contributed to the formation of our team's roadmap and accountable for the delivery of the technical items on the roadmap. Re-architected the core of our application into discrete SOA components by introducing web service boundaries to alleviate scaling and maintainability constraints in the pervious, monolithic architecture. Delivered a 14x reduction in query latencies along with a 50% reduction in memory usage by reengineering our query engine's threading model, introducing concepts such as: async IO, copy-on-write caches, concurrent sorts, and concurrent aggregations. This added capacity allowed us to deliver key functionality in our 2014 business goals. Improved measurability and stability of our platform's performance by building an automated load test suite that integrated with our continuous integration / deployment system. This initiative improved the transaction rate (TPS) of our application by 50%. Designed and implemented a distributed transaction manager based on the Paxos algorithm in order to increase horizontal scalability of our core application components. Provided code and design reviews for my team as well as adjacent teams. Mentored junior developers as part of the Amazon Mentorship Program. Led Sprint planning and Scrums. Conducted 'Brown Bag' sessions for several teams on topics including "Dependency Injection", "Securing your web service", and "Java Concurrency: Visibility vs. Atomicity", "Code Quality w/Sonar", and "Building Robots with Microcontrollers". This position required the use of the following technologies: Amazon Web Services - EC2, Elastic Data Pipeline, Elastic Map Reduce S3, SimpleDB, Simple Notification Service (SNS / SQS), ElastiCache, RDS, Redshift Java, GWT, Hive, Hadoop, Shark/Spark, Spring, Java Concurrency, Trove Mar 2010 to Sept 2013 **Nomura Securities** New York, NY Vice-President of Cross Platform Engineering / Global Head of Systems Management
 - Responsible for technology strategy and roadmap in the areas of Application Instrumentation and Enterprise Message Oriented Middleware.

- Designed a globally used Capacity and Performance management platform (PMP) using Java with Spring. The web tier incorporated traditional MVC patterns and the system tracked hundreds of KPIs across 30,000+ entities on a near real-time basis. This project led to significant improvements in ROI for our existing server population through increased utilization.
- Designed and implemented a data federation layer (AMBER) as a strategic integration and correlation point between all the firm's monitoring systems. The platform was built on JMS and utilized Apache ActiveMQ for message brokering with a series of 'bridges' written in Java to provide contextual translation between event domains. This decoupled us from specific vendor technologies and provided greater flexibility to replace gaining products.
- Portions of AMBER and PMP are presently in the process of being licensed to an external firm. This represented the first time in Nomura's history that an infrastructure team generated revenue.
- Managed the product selection (bakeoff) and global rollout of System Sentinel to 25,000 servers and desktops as a replacement for HPOV (A 3+ million dollar save).
- Managed a team of seven people, with day-to-day responsibilities including engineering and enhancement of Nomura's primary monitoring platforms (HPOV & System Sentinel), core services (DNS, LDAP, SSO), and capacity management.
- Provided recommendations and best practices to application teams on how to address performance and operational issues.

Dec 2008 to Mar 2010 Pipeline Financial Inc. New York, NY

Production Support Engineer / Lead Market Data Engineer

- · Responsible for the strategy and engineering of the firm's low latency market data platform.
- Designed and implemented a real-time monitoring platform for wombat in C++, leveraging the 3.3/4.0 Mama APIs to consume administrative symbols via record subscriptions.
- Designed and implemented a C++ application to consume raw exchange multicast market data feeds for sequence number, latency, and data quality inspection in real-time for UTP, CTA, ArcaBook, TvItch 3.1, Openbook, NyseBQ, and Opra.
- Improved the Wombat infrastructure from 100ms internal latency down to less than 1ms.
- Managed every aspect of our LBM based Wombat Feedhandlers including: kernel tuning, hardware selection, network capacity, and client side tuning. Feeds included UTP, CTA, ArcaBook, TvItch, Openbook, NyseBQ.
- Worked with application developers to optimize performance programmatically, as well as through more traditional methods, such as symbol grouping.
- Responsible for application support for the Pipeline Exchange including: FIX Order Flow, Matching Engine, Algorithmic Trading Performance, and general Linux issues.

May 2006 to Dec 2008 Lehman Brothers / Barclays Capital Jersey City, NJ Developer and Project Manager / Infrastructure Engineering and Support Support

- Extensive hands-on experience in design, implementation, and support of multi-platform applications for servicing varying problem domains, including Biometric Authentication, E-Bonding, Proactive Monitoring via Synthetic transactions, Intelligent IP Telephony Call Routing based on call center load factors, and Near Real Time Data Aggregation.
- Designed and implemented a globally deployed secure RPC service for the firm's Windows platforms. Patent Pending.
- · Created E-Bonding solutions for integrations with Verizon and BT Radianz.
- Managed a team of several developers through various automation and scripting projects that supported the Network and Extranet Operations teams.
- Built a voice biometric telephony application to allow account management for a number of the firm's internal applications (Active directory, Mainframe, etc.).

Jun 2012 to Oct 2012Distributed ZigBee Sensor MeshNew York, NYPrinciple Engineer

- Created prototype hardware for establishing a ZigBee mesh network in a typical single-family home or multi-family apartment building using a series of XBEE radios and embedded microcontrollers for the purpose of establishing a low-cost competitor to the currently available building management systems.
- Implemented an Internet Bridge and control center for the above sensor network capable of running on an embedded Unix system. For prototyping, a Raspberry Pi was used due to its low production cost and flexibility.

CONSULTING PROJECTS: