

# Stephen A. Broeker

[steve\\_broeker@yahoo.com](mailto:steve_broeker@yahoo.com)

▪ [www.linkedin.com/in/stevebroeker](http://www.linkedin.com/in/stevebroeker) ▪ (408) 773-8553

## Professional Strengths

**Patented Software Architect** – Passionate about innovation, prototyping and creating new tools to solve complex leading-edge business problems. Expert in Unix, embedded OS, storage systems, real-time applications, online analytical processing, and high performance file systems. Versatile in Linux, VxWorks, Cisco IOS, AT&T Plan9, Tandem Guardian, AT&T Unix, and BSD Unix. PhD thesis improved streaming databases by over 40 times.

**Results-Oriented Leader** – Seasoned project manager and mentor, effectively driving cross-functional teams. Ability to sift through varying dependencies, aggressive timelines, problematic coding issues to deliver exceptional results that support business strategies and leverage market advantage.

**Motivated & Engaged Troubleshooter** – Proven track record with troubleshooting at project level and in the field with clients. Able to engage, communicate and motivate others to achieve immediate and lasting solutions.

## Professional Experience

2011 – Present  
**Cloud Architect, Internap**

Responsible and team leader for a new data center product: cloud storage which is based upon OpenStack Swift which includes:

- Ported Internap's cloud storage to the Swift Diablo release.
- Created a development infrastructure for cloud storage, including unit tests, functional tests, stress tests, health monitoring.
- Designed and implemented push button storage cluster creation via Vagrant.
- Identified and prioritized a feature roadmap including object versioning, conditional puts, offsite replication, and performance.
- Pushed bug fixes upstream to OpenStack.
- Member of team that ported OpenStack Nova to the data center, first commercial offering of Nova.

2009 – 2011  
**Architect, Quantum**

Responsible for upgrades, web services, cloud services, databases, and system configuration for the infrastructure group of Quantum's storage division.

- Researched, designed, prototyped Web Services interface, based on Apache and REST (HTTP and XML), enabling remote and third-party GUIs, easy system access via an industry standard interface, and scalable architecture. Led 20-person cross-functional team, including CLI, GUI and Platform units. Presented to Architectural Board, Engineering Leadership, and Executive Management. Trained, and documented project that massively reduced code complexity (previous implementation was SOAP based).
- Saved customer support time by implementing multiple boot partitions on the system disk. Customers can now easily abort system upgrades without negative effects.
- Greatly simplified system upgrades by creating a System Configuration Manager based on MySQL using XPATH and relational tables. This new tool provided a scalable architecture that enables a single repository, unified format providing an API, keeping transactions safe, preventing corruption, and guaranteeing validity.
- Minimized application changes and concealed Cloud Storage details from applications with a POSIX like file system for improved efficiency. Lead team to use libcurl and Apache to communicate via a scalable architecture with Public Cloud Storage that supports Amazon S3, Microsoft Azure, Google Cloud Services and Iron Mountain Cloud Services. Lead team to build prototypes/proof of concept for Executive Management.

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2003 –  
2009

### ***Senior Architect, Reconnex (acquired by McAfee)***

Designed and implemented Internet Security Systems using real-time object capture engines. Products primarily consisted of applications running over Linux on 64 bit Intel Systems from Ethernet into storage databases and file systems.

- Platform Team Manager responsible for file system, database, search control, web services, system configuration, and the process model. Written in C and KSH, designed a process model responsible for application control including startup/shutdown, memory dumps, logging, status, statistics, IPC & alarms. Received Outstanding Engineer Award.
- Took over faltering projects: IPC, database, search control, web services and system configuration.
- Created a Star Schema database (patent) in MySQL to improve efficiency of the Meta Data database. Prone to crashing and hanging, the new schema was also GUI friendly.
- Designed and implemented a file system (patent) that greatly increased and maximized write performance via a scalable architecture.

### **Other Relevant Experience**

- Consultant, YouSendIt
- Senior Software Engineer, Rasvia Systems
- Senior Software Engineer, nCUBE
- Technical Lead, Cisco Systems
- Senior Software Engineer, Pyramid Technology Corporation

### **Patents**

- Stream Star Schema and Data Value Cube for Data Stream Analysis (40x improvement in data streaming)
- High Speed Packet Capture File System – Reconnex
- High Speed Packet Capture Data Base – Reconnex
- Linux C Apache Web Server – YouSendIt
- Reliable Shared Memory File System for Inter-Processor Communications – Rasvia.

### **Education & Affiliations**

- PhD Candidate, Computer Engineering, Santa Clara University  
Thesis: A Stream Star Schema and Data Value Cube for Data Stream Analysis
- MS, Computer Science, Aurora University  
Thesis: An Analysis of Polynomial and Generalized Learning as Applied to the Game of Score-Four
- BS, Mathematics, Pacific Lutheran University  
Thesis: Chebyshev's Approximation to Polynomials.
- UC Santa Cruz, Storage Systems Research Center
- SD Forum, Member
- Usenix, Member