Mark S. Millard

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SUMMARY

Seasoned software solutions architect with experience leading teams for both research and development projects. Over twenty years in the software industry in a variety of roles including software architect, development engineer, team lead, engineering management and client services. Experience in embedded technologies, server-side applications, and tools.

EXPERIENCE:

Alticast, Inc., 370 Interlocken Blvd, Suite 120, Broomfield, Colorado   **Jan 2017 - Present**
Director of Solution Architecture

- Responsible for providing solution architecture and services to Alticast clients.
- Alticast, Inc. product: Wrote Software Download server for Android OTA Packages. REST API based on Google OTA Cloud Service. Server written in Go utilizing Cassandra DB, Redis and Casbin.
- Alticast, Inc. product: Wrote ATSC 3.0 Service Usage Data server for A/333 specification Consumption Data Messages (CDM). Server also collects telemetry and logs from ATSC 3.0 middleware stack. Server written in Go utilizing Cassandra DB.
- Alticast, Inc. product: Wrote video transcoder, DASH to HLS, for Android ATSC 3.0 middleware stack. Server written in Java and client written in C/C++.
- Charter Communications: Implemented ActiveVideo AppCloud STB client for Charter demonstration of Disney+, HBO Max and Youtube applications on RDK-V. Written in C/C++ using Broadcom Nexus support libraries. Integrated with RDK WPEFramework and Widevine DRM.
- Charter Communications: Designed the software architecture and implementation of a Remote Management System for STB device control and management. Configured and managed Comcast WebPA server components using Amazon Web Services (AWS). Designed and implemented message protocol between STB clients and RMS servers. Designed and implemented Web Server, written in Go, for transmitting messages between STB clients and Web UI. Integrated with Charter backend using MySQL DB for customer information configuration.
- Charter Communications: provided solutions architecture and software development infrastructure for new ARRIS/CommScope, Technicolor and Humax STBs (WB 2.0). Responsibilities included defining and managing CableCARD Interface Emulator, Downloadable CAS (NCAS), Host Diagnostics and Remote Device Access solutions.
- Wrote Xconf Log File Server using Go and Cassandra DB. The server is an open source contribution to RDK LLC.
- **Technology**: ATSC 3.0, RDK-V 4.0, RDK-B, WPEFramework, WebPA, Xconf, SNMP, Java, C/C++, Go, Yocto, Docker, REST API/Postman, MySQL, Cassandra, Redis, JSON, WebSocket, Amazon Web Services (EC2/VPC), OCAP, Raspberry Pi, Atlassian Tools, Github, Bitbucket, Android, Linux

Alticast, Inc., 370 Interlocken Blvd, Suite 120, Broomfield, Colorado   **May 2012 - Jan 2017**
Principal Engineer

- Responsible for providing engineering resources and services to Alticast clients.
- Time Warner Cable: Provided solutions architecture and software development infrastructure for RDK-V IP set-top boxes. Managed Alticast development team. Wrote architectural documentation and defined TR-181 data models.
- Time Warner Cable: Worked on initial port of RDK-B for an advanced wireless gateway device (ARRIS/CommScope).
- Comcast: Designed extensions for legacy OCAP programming guide.
- AcitveVideo Networks: Fixed a Cloud-based application client deployed by Time Warner Cable.
- Cable Television Laboratories: Developed extensions to the OCAP specifications and drafted a proposal for a headless video gateway.
- Alticast, Inc. product: Investigated advanced wireless gateway solutions involving RDK-B, OpenWrt, and Android. Brought up RDK-B technology on Broadcom STB client devices for device management. Ported Android Linux kernel to Intel RDK-B Gateway platform.
- **Technology**: RDK-V 1.3/2.0, RDK-B, Cisco CCSP, TR-069, Java, C/C++, HTML5, Javascript, Yocto, Amazon Web Services (EC2), D-Bus, GStreamer, Qt/QtWebkit, Intel Puma6/Puma7 SoC, Android/AOSP, Raspberry Pi, Atlassian Tools, Bitbucket

enableTV, Inc., Boulder, Colorado   **Sep 2008 - Apr 2012**
Software Architect

- Responsible for providing engineering resources and services to enableTV clients.

- ActiveVideo Networks: Developed a CloudTv client for Time Warner Cable. Written in Java for OCAP, the client was deployed and used for providing interactive applications over the cloud to a TWC set-top device.
- Cable Television Technologies: Participated in the design and implementation of the OpenCable Applications Platform (OCAP) Reference Implementation and <tru2way> Workbench (OCAP simulator and authoring tool).
- enableTV: Developed a registration interface for transferring interactive television application to headend application servers. Used Web Services (SOAP) and written in Java.
- **Technology**: Java, C++, Shell Scripting, OCAP, DVB-MHP, GEM, EBIF, SOAP, WSDL, XML, Windows XP/Vista/7, Linux, OpenGL, wxWidgets, GTK, Eclipse

Vidiom Systems, Inc., Broomfield Colorado   **Jul 2000 - Aug 2008**
Software Architect

- Responsible for providing engineering resources and services to Vidiom Systems clientele.
- Cable Television Laboratories: Worked as the technical editor and individual contributor on the OpenCable Application Platform (OCAP) 1.0 specification.
- AOL Time Warner: Worked on various interactive TV technologies for the ATG-W division.
- PolyCipher: Developed an emulator for the Downloadable Conditional Access System (DCAS) infrastructure.
- Comcast and Microsoft: Worked on a prototype of the BOCR CableCard System using the ODL OCAP Stack.
- Vidiom Systems: Responsible for the design, implementation, and productization of VISION Workbench, an iTV application development IDE used for creating OCAP applications.
- **Technology**: Java, C++, .Net, Shell Scripting, OCAP, DVB-MHP, GEM, EBIF, XML, Windows XP/Vista, Linux, ActiveX, DirectX, Eclipse, CORBA

Veridicom, Santa Clara, California   **Sep 1999 - Jun 2000**
Senior Software Engineer

- Responsible for developing embedded technology for biometric devices.
- Designed and implemented a serial device driver for Windows NT 4.0 for communicating with an embedded fingerprint sensor.
- Designed and implemented an interactive Tcl/Tk application for testing the fingerprint sensor. Extended messaging and command protocol running on fingerprint sensor.
- **Technology:** C, C++, Tcl/Tk, Shell Scripting, Windows NT, Linux

Silicon Graphics, Inc., Mountain View, California   **Apr 1994 - Aug 1999**
Senior Software Engineer

- Responsible for design and implementation of 3D authoring system for interactive titles.
- Designed cross-platform runtime engine components and mastering tools for target platforms.
- Authored game applications to test concepts and implementation.
- Alias|Wavefront: Wrote data transport protocol and tethered viewer for Maya and the SGI VRML browser.
- MIPS Consumer Products: Wrote animation player for testing YUV graphics frame-buffer rendering.
- Wrote translator for converting high-level 3D scene graphs into microcode display lists. Help identified real-time operating system requirements for set-top boxes.
- Investigated various technologies for SGI's Digital Media SDK.
- Initiated project management tasks for dmSDK (Khronos OpenML) project including cross-platform software development processes.
- **Technology:** C, C++, OpenGL, Open Inventor, DirectX, DirectShow, BRender, VRML, IRIX, Windows 98/NT, Sony Playstation

Media Station, Inc., Ann Arbor, Michigan   **Dec 1992 - Mar 1994**
Senior Software Engineer

- Responsible for design and implementation of authoring tools for CD-i and CD-ROM multimedia applications. Designed and implemented content viewer for browsing audio, video and image assets.
- Wrote real-time AV streaming software for Disney Animated Storybook titles.
- **Technology:** Objective-C, C++, C, NEXTSTEP, OS9, Windows 95 (Win32)

Microware Systems Corporation, Des Moines, Iowa   **Sep 1989 - Nov 1992**
Software Engineering Manager

- Responsible for directing software engineering efforts in multimedia application development.
- Managed both software and content development personnel.
- Contributed to applications developed for Meredith Publishing Corp., Reader's Digest, Spiegel Catalog, J.C. Penney and Hammacher Schlemmer.
- Developed real-time audio and video libraries as well as application authoring tools.
- **Technology:** C, Shell Scripting, OS9, CD-i, CD+G, MPEG1

Hewlett Packard, Santa Clara, California   Jul 1984 - Aug 1989
Development Engineer

- Responsible for conception, design and implementation of an artwork and schematic editor used in an integrated VLSI CAE system.
- Duties included definition of graphical and hierarchical database arenas, development of a window/viewport manager and associated viewing modules, access utilities for hardcopy devices, and integrating layout verification and device extraction tools.
- **Technology:** C, Shell Scripting, Starbase Graphics, X11 Windows, HPUX

Computation Center Engineer Lab, Iowa State University, Iowa   Apr 1983 - May 1984
Associate Engineer

- Responsible for troubleshooting and repairing peripherals, installing micro-computer labs, and upgrading/enhancing PC's.
- Designed and implemented a database system for tracing cables.
- **Technology**: Pascal, Fortran, UNIX

EDUCATION:

Iowa State University, Ames, Iowa
B.S. Computer Engineering, Graduated May 1984

De Anza College, Cupertino, California
Film/TV Production, June 1985 – May 1989

OPEN SOURCE PROJECTS

Magic Lantern Studio   2000 - Present

Magic Lantern is a framework for developing multimedia applications. It is designed to be a cross-platform solution for multiple targets such as desktops, game consoles, mobile devices and set-top boxes.
- Developed Runtime Engine solutions for C/C++, Java and Android platforms.
  - Android Platform: https://github.com/magic-lantern-android-studio
- Developed authoring tools and plug-ins for Eclipse IDE
- **Technology**: C, C++, Java, C#, Windows 10/7/XP/Vista, Linux, Android, Open Inventor, DirectX, OpenGL, COM/ActiveX, Eclipse plug-ins, Qt, Autoconf, Github, SourceForge

Coin3D   2019 - Present

Coin3D is an open source implementation of the SGI Open Inventor scene graph technology.
- Individual contributor and testing.
- **Technology**: C, C++, Windows, Linux, MacOS, Open Inventor, OpenGL

M3G Viewer   Deprecated

The M3G Viewer is a standalone application for viewing the contents of the 3D Graphics File Format that complements the Mobile 3D Graphics API (M3G).
- Developed 3D library using OpenGL for rendering M3G file contents.
- Developed Eclipse RCP viewer.
- **Technology**: Java, Windows XP/Vista, Linux, Nokia Series 40, Eclipse plug-ins and RCP, JSR 184 (M3G), OpenGL