



RESUME

MARK BENSON

Software Engineering Leader

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SUMMARY

Accomplished C-level technology leader. Experienced in strategic, operational, and financial management of cross-functional teams in highly-competitive markets. Successful track record of defining and realizing pragmatic product strategies to meet the requirements of complex enterprises across multiple functions and verticals. Strong interpersonal and formal communication skills.

SPECIALTIES

SKILLS: Software Leadership | Product Management | Strategic Planning | Intellectual Property | Software Development Life Cycle | Information Security | Quality | Competitive Strategy

STRENGTHS / PERSONALITY: Learner, Restorative, Individualization, Achiever, Intellection / INFJ-A (Advocate)

METRICS



WORK EXPERIENCE SUMMARY



Head of Engineering

Samsung SmartThings • Minneapolis, MN (October 2018 - Present)

SUMMARY: Responsible for all engineering functions including devices, cloud, mobile/ecosystem, quality, and security.



Chief Technology Officer

Exosite • Minneapolis, MN (September 2012 - October 2018)

SUMMARY: Responsible for software engineering, product management, competitive strategy, security, and quality.



Director of Software Engineering

Logic Product Development • Minneapolis, MN (October 2000 - September 2012)

SUMMARY: Responsible for embedded software engineering, software strategy, and several product design programs.

EDUCATION

Harvard Business School • Cambridge, MA (2011)

Leading Professional Service Firms

Areas of focus: microeconomics, leadership, organizational design, and customer relationship management.

University of Minnesota • Minneapolis, MN (2005 - 2007)

Master of Science, Software Engineering

Studied lock-free abstractions for reading and writing to shared resources in multi-threaded applications.

Bethel University • Arden Hills, MN (1997 - 2001)

Bachelor of Science, Computer Science

Studied computer science, minored in mathematics, and captained the tennis team.

RECENT BOOK



The Art of Software Thermal Management for Embedded Systems

An introduction to the art of controlling the thermodynamic behavior of computing systems with software. Published by Springer, New York (2014).

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WORK EXPERIENCE



Head of Engineering / SmartThings

February 2020 - Present

- Responsible for the strategic direction of the engineering organization including the definition and measurement of business outcomes, quarterly goals, annual objectives, and multi-year initiatives.
- Responsible for recruiting, hiring, growing, and retaining world-class talent that is customer-obsessed, empowered, and organized into small high-impact autonomous teams that are tightly aligned to achieving business outcomes.
- Responsible for the architecture and delivery of a globally-available and distributed device/cloud/mobile/ecosystem platform that is reliable, scalable, secure, and performant while adhering to regional latency targets and privacy regulations.
- Responsible for creating and improving engineering processes for defining, designing, developing, delivering, and operating services and offerings with strong engineering hygiene while remaining flexible enough meet the needs of the business.
- Responsible for the engineering budget including labor costs, optimization of direct/insource/outsource spending, infrastructure cost management, capacity planning, and software vendor contracts and partnerships.



VP of Cloud Engineering / SmartThings

October 2018 - February 2020

- Responsible for attracting, retaining, and growing top software engineering talent for cloud engineering teams including core IoT primitives, rules & behaviors, eventing, security management, release engineering, and developer enablement services.
- Responsible for structuring, measuring, and improving all aspects of the software development process and related activities to improve agility, speed, performance, and quality in a way that aligns and empowers autonomous teams.
- Responsible for delivering a globally-available and distributed software platform that is reliable, scalable, and secure while meeting regional latency and performance requirements.
- Key leadership role in annual and quarterly strategic planning initiatives for the engineering organization to ensure that all teams and units are aligned with business objectives and operate as a cohesive unit.



Chief Technology Officer / Exosite

September 2012 - October 2018

- Responsible for 5-year technology roadmap for the company to ensure long-term stability and position in the emerging Industrial Internet of Things market.
- Responsible for technical talent for information technology, engineering, product management, technical communications, quality assurance, information security, and support services, including recruitment, hiring, career development, performance management, and retention for positions ranging from Vice Presidents to Directors to Managers to engineers and other administrative staff.
- Frequent speaker at community and professional events as an industry thought-leader and communicator to further the enterprise IoT industry, and grow Exosite brand strength in the marketplace.
- Responsible for the company's intellectual property portfolio, including patent prosecution, trademarks, and software license terms, and contracts.
- Responsible for competitive strategy and intelligence including win/loss analysis, competitive dimensions, competitive forces, competitive landscape predictions, and the strategy for developing symbiotic ecosystem partnerships.
- Responsible for corporate metrics and dashboards to give insight into business performance and to drive the leadership team to action-oriented, data-driven decisions and results.

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WORK EXPERIENCE



Director of Software Strategy / Logic PD

February 2011 - September 2012

- Directed product software development activities and engineering talent, including recruitment, offers, reviews, training, career development, and mentoring to attract and retain top talent.
- Developed and communicated corporate software strategy by analyzing, identifying, and pursuing technologies and partnerships that enhance and defend Logic PD's long-term stability and brand position in the marketplace.
- Co-lead the Technology Roadmap Development program to identify and cultivate technologies that augment the company's IP portfolio through a structured process that solicits and empowers innovation throughout all levels of the company.
- Established Logic PD's Early Adopter Program (EAP) to provide key customers early access to Logic PD products hardware and software artifacts prior to general availability through distribution.



Director of Embedded Software Engineering / Logic PD

September 2009 - February 2011

- Directed service software development engineering talent, including recruitment, offers, reviews, training, career development, and mentoring to achieve \$2.2M annual revenue with a \$.9M gross margin contribution at 14% CAGR.
- Developed business by presenting product development products and services to potential clients via project plans, statements of work, terms and conditions, and face-to-face consultative selling techniques.
- Managed design service resource staffing issues by assigning personnel to product development projects using sales forecasts, yield projections, and resource modeling techniques.
- Introduced Monte Carlo methods, tools, and processes to the business development team for quantitatively assessing design service program risk to aid in the pricing process for fixed-bid programs.
- Acted as program manager for an ITAR-rated soldier vision system yielding \$1.8M in design services revenue with 30+ team members over 18 months.



Senior Software Engineer / Logic PD

September 2007 - September 2009

- Led a team of managers and executives to design, implement, and roll out an ISO13485-compliant Quality Management System and associated processes and tool for 125 employees under an aggressive schedule.
- Co-led a multi-discipline (ID, ME, EE, SE, MFG) team to design and develop a complex flash column chromatography fluidics and motion-control system based on an AMD Geode LX design running Windows XP and C# .NET for chemists.
- Led a geographically-distributed team to design and develop the software for a Linux and TI-OMAP-based next-generation portable video borescope.
- Led a team of principal engineers to evaluate a prostate mechanical imaging system for manufacturability with an eye towards improved next-generation versions of the product and associated cost-reduction opportunities.
- Led a team of principal engineers to architect a next-generation, low-power, cost-effective, web tablet based on a TI OMAP 35x ARM/DSP running Windows CE 6.0 for the medical industry.
- Led a multi-discipline (ID, ME, EE, SE) team of engineers to develop an Engine Trend Monitoring device for Turbo-Prop Commuter Planes and Homebuilt aircraft.
- Developed an MFC application over the course of 9 months to control a heart lung machine (HLM) bio-pump using an XScale PXA255 Windows CE 4.20 hardware platform.

MARK BENSON

WORK EXPERIENCE



Software Engineer / Logic PD

May 2001 - October 2007

- Wrote Logic PD's Software Development Process and created all associated templates and forms for use across the organization and its 150+ annual development projects.
- Wrote a U-Boot extension for managing a BoP (Broadband over Powerline) chipset for a traffic management system.
- Developed an inventory scanner system for bicycle shops using Windows CE, C++, and a PXA270-based Symbol scanner.
- Managed a distributed team of engineers to develop the Linux-based embedded platform for a handheld wireless voice-controlled music and information system.
- Developed a user-mode Linux application in C to read and write an Analog Devices 5245 digital potentiometer using I2C.
- Developed a Linux Board Support Package (BSP) using C, gcc, binutils, and glibc for a brain-state assessment device for infants using auditory screening based on a TI OMAP 5910.
- Developed a Windows CE DLL to communicate over Microsoft ActiveSync RAPI to an automobile engine-analysis scope.
- Led a team of as many as 7 engineers over 16 months to port pacemaker and defibrillator software applications written in C for the QNX RTOS to a next-generation platform.
- Developed a mapping application using Microsoft .NET, C#, C++, and GDI+ to manage an array of infrared laser radar devices and night-vision cameras.
- Developed an application to streamline drug testing and associated chain-of-custody forms using Microsoft .NET, COM+, and Microsoft SQL Server.
- Developed and executed automated and manual tests using an oscilloscope and signal generator to verify a safety-critical fiber-optic safety sensor.
- Developed an application with a dynamic GUI that could be described in XML using MFC and C++ to program a family of industrial safety sensors.
- Wrote a language and accompanying interpreter along with two (2) other Software Engineers to control a printer laminator/cutter/stapler/stacker device using C and an Hitachi H8S.

PATENTS

Gateway-facilitated communications for resource-constrained devices

United States 9,876,850 (December 10th, 2015)

Configuring network access parameters

United States 20150257008 (September 10th, 2015)

Facilitating communication between smart object and application provider

United States 9,848,063 (September 10th, 2015)

Methods for embedding device-specific data to enable remote access to real time device data

United States 8,857,704 (January 11th, 2013)

Methods for embedding device-specific data to enable remote identification and provisioning of specific devices

United States 8,857,705 (January 11th, 2013)

Systems, devices and methods for provisioning, pairing and activating a newly manufactured device for automatic joining of customer's network

United States 9,313,099 (November 27th, 2012)

MARK BENSON

FORMAL PUBLICATIONS & PRESENTATIONS

- Benson, M. D. "Predictions on Conversational AI, Fog Computing, and Digital Privacy." *CIO Synergy* (August 2019).
- Benson, M. D. "IoT Cybersecurity and Innovation for Regulated Industries." *Harvard Club of NYC* (September 2018).
- Benson, M. D. "Making IoT Work For Your Organization: Lessons Learned in Digital Transformation." *Smart IoT London* (March 2018).
- Benson, M. D. "Avoiding the Pitfalls: Five Tactics for IoT Program Leaders." *IoT Central* (January 2018).
- Benson, M. D., Erickson, R., Nelson, S. A., and Carlson, R. "The Smart Business of Smart Things." *Agile Day Twin Cities* (November 2017).
- Benson, Mark D. "The Organizational Psychology of IoT." *IoT Agenda* (October 2017). Benson, Mark D. "Tiers of User Experience for Smart Connected Appliances." *Appliance Design Magazine* (July 2017).
- Benson, Mark D. "The Organizational Psychology of the Internet of Things: How to Use Technology to Drive Behavioral Change." *Sensors Expo* (June 2017).
- Benson, Mark D. "Building an Organizational IoT Competency: How to Prevent Disaster." *IoT Slam* (June 2017).
- Benson, Mark D. "Organizational Leadership: Building a Sustainable Cyber-Physical Security Competency." *University of Minnesota Twin Cities Technological Leadership Institute* (June 2017).
- Benson, Mark D. "IoT for Organizations: Avoiding Common Pitfalls." *University of Wisconsin-Madison IoT Systems Research Center* (May 2017).
- Benson, Mark D. "Building An Organizational IoT Competency: What You Need To Know." *Forbes* (April 2017).
- Benson, Mark D. "The Voice of Machine Learning Starts and Ends With Humans." *Embedded Computing Design* (March 2017).
- Benson, Mark D. "How IoT Is Changing Corporate Innovation." *IoT Agenda* (February 2017).
- Benson, Mark D. "Improving Energy Efficiency of Intelligent Buildings with Smart IoT Retrofits." *AHR Expo* (February 2017).
- Benson, Mark D. "Five Avoidable Complications Of Corporate IoT Innovation Programs." *Forbes* (December 2016).
- Benson, Mark D. "Best Practices in Predictive Maintenance for Connected Industrial Equipment." *Industrial Equipment News* (October 2016).
- Benson, Mark D. "Enabling Service-Delivery Business Models with Remote Sensing Technology." *Sensors Midwest*, Chicago, IL (September 2016).
- Benson, Mark D. "Data Analytics for IoT Device Deployments: Industry Trends and Architectural Trade Offs." *Sensors Midwest Industrial Internet of Things University*, Chicago, IL (September 2016).
- Benson, Mark D. and Ericson, Brian. "5 Best Practices For Winning the IoT Security Arms Race." *Dark Reading* (September 2016).
- Benson, Mark D. "Future on Water: IoT Infiltration into Water Management Solutions." *Minnesota Water Technology Summit*, Minneapolis, MN (September 2016).
- Benson, Mark D. "Monetizing in New Technology Spaces." *Frost & Sullivan Growth, Innovation, and Leadership, Silicon Valley*. (September 2016).
- Benson, Mark D. "The Rise of Platforms in the IoT." *Peggy Smedley Institute*. (September 2016).
- Benson, Mark D. "IoT Organizational Readiness for Multiunit Industrial Enterprises." *IoT Innovator*. (August 2016).
- Benson, Mark D. "Beyond the Dashboard: Business Process Optimization Through IoT Data Analytics." *IoT Evolution*, Las Vegas (July 2016).
- Benson, Mark D. "A Modern Platform Approach for Creating Smart Connected Products." *Sensors Expo*, San Jose (June 2016).
- Benson, Mark D. "Developing a Future-Proof IoT Roadmap for Connected Devices and Data." *Sensors Expo*, San Jose (June 2016).
- Benson, Mark D. "Don't Design from Scratch When You Can Do an In-field Retrofit." *Embedded Computing Design* (June 2016).
- Benson, Mark D. "Business Analytics and the Internet of Things." *Vantage Advanced Professional Studies*, Minnetonka (May 2016).
- Benson, Mark D. "IoT: It Takes an Ecosystem." *IoT Fuse*, Minneapolis (April, 2016).
- Benson, Mark D. "IoT for Durable Goods Manufacturing: An Exercise in Business Transformation." *IoT Now* (April, 2016).
- Benson, Mark D. "Eleven Myths About Data Analytics for IoT Device Fleets." *Electronic Design* (April 2016).
- Benson, Mark D. "What Makes IoT Security So Hard?" *Security Ledger* (April 2016).
- Benson, Mark D. "Industrial Business Transformation Through Connected Products." *IoT Evolution*, Fort Lauderdale (January 2016).
- Benson, Mark D. "Building Sticky Brand Loyalty with a Connected Product Strategy." *IoT Evolution*, Fort Lauderdale (January 2016).
- Benson, Mark D. "Understanding and Mitigating IoT Security Hazards." *Internet of Things Developer Conference*, San Jose (May 2015).
- Benson, Mark D. "Internet of Things Security Patterns." *Internet of Things Stream Conference*, San Francisco (April 2015).
- Benson, Mark D. "Disruptive Innovation Through IoT." *Financial Executives International*, Minneapolis (April 2015).
- Benson, Mark D. "Five Phases of IoT: A Market Maturity Model for the New Connected Device Economy." *IoT Fuse*, Minneapolis (March 2015).
- Benson, Mark D. "Internet of Things: Opportunities Abound As We Live an Increasingly Connected Life." *Minnesota High Tech Association Tech.2015 Conference*, Minneapolis (March 2015).
- Benson, Mark D. "A Micro-Vertical Engine Approach for Rapid IoT Mass Customization." *M2M Evolution*, Miami (February 2014).
- Benson, Mark D. "The Art of Software Thermal Management for Embedded Systems." *Springer* (January 2014).
- Benson, Mark D. "Cloud 101 for Embedded Designers." *Design West Conference* (April 2013).
- Benson, Mark D. "Introduction to the M2M Ecosystem: Emerging Trends." *IoT Meetup*, Minneapolis (March 2013).
- Benson, Mark D. "Software Thermal Management with TI OMAP Processors." *EE Journal* (August 2012).
- Benson, Mark D. "Developing Embedded Hybrid Code Using OpenCL." *RTC Magazine* (July 2012).
- Benson, Mark D. "Trading Power and Performance to Achieve Optimal Thermal Design for Battery-Powered Devices." *Communications, Microsystems, Optoelectronics, and Sensors (CMOS)* (July 2012).
- Benson, Mark D. "The Influence of Mass-Market Design Patterns from Adjacent Industries on the Development of Niche Diagnostic Devices." *Medical Design Technology Magazine* (June 2012).
- Benson, Mark D. "Preparing For Future Health Technology Trends by Analyzing Current Consumer Demand." *American Telemedicine Association (ATA)* (May 2012).
- Benson, Mark D. "Multi-Core Architectural Decomposition Methods for Low-Power Symmetric and Asymmetric Multi-Processing." *Design West Multicore Developers Conference* (March 2012).
- Benson, Mark D. and Toner, Ben. "Intelligent Data Management for Wireless Medical Devices." *Medical Device and Diagnostic Industry (MDDI) Guide to Outsourcing* (February 2012).
- Benson, Mark D. "Domain-Driven Device Cloud Design with Monte Carlo Methods." *Embedded Systems Design* (August, 2011).
- Benson, Mark D. "Wireless in Telehealth: Critical Considerations for Technology Adoption." *Embedded Computing Design* (August 2011).
- Benson, Mark D. "Minimizing Technology Drift in Vertically-Integrated Medical Device Companies via Strategic Outsourcing." *Medical Design Technology Magazine* (May 2011).
- Benson, Mark D. "Android Adoption and its Economic Impacts to Product Software Strategy." *Real-Time & Embedded Computing Conference (RTECC) Keynote* (March 2011).

MARK BENSON

RECOGNITIONS

 Titans of Technology - Mark Benson	<i>February 2017</i>
The Minneapolis / St. Paul Business Journal connects the business community with breaking news and features. The Titans of Technology award recognizes individuals who are transforming Minnesota's tech industry and giving companies a competitive edge. In spring of 2017, the Minneapolis / St. Paul Business Journal awarded Mark Benson honors as a top CTO in the region.	
 Forbes Technology Council	<i>August 2016 - October 2018</i>
Forbes is one of the most iconic media companies in the world. The Forbes Technology Council is an invitation-only community for world-class CIOs, CTOs and technology executives. Members are selected based on their technology expertise, leadership in a high-growth business, track record of industry recognition, and community impact. Mark Benson was invited to the Forbes Technology Council in 2016 and is a regular contributor on Forbes.com.	
 Hewlit Packard Enterprises: Executive Corner Featuring Mark Benson	<i>Ocrtober 2015</i>
Through its recurring online publication, HP Matter provides in-depth insight and expertise on a variety of trending topics and quickly evolving industries. Each issue features Executive Corner interviews with thought leaders in fields relevant to the issue's topic. Their October, 2015 issue (The Energy Issue: Exploring the Resources that Power Economies) featured Mark Benson and examined the convergence of energy and technology, as well as the shift of the energy landscape towards connectivity in an effort to enable greater efficiencies, reduce consumption, and improve consumer experiences.	
 TECHdotMN Meet a Minnesota CTO: Mark Benson	<i>May 2015</i>
TECHdotMN cultivates and reports on Minnesota's high tech ecosystem and the early stage ventures within it through a mix of unique audio/ video features and written word. TECHdotMN's Meet a Minnesota CTO series gets up close and personal with Minnesota's chief technologists. In May of 2015, TECHdotMN featured Mark Benson.	

INTERVIEWS

Benson, Mark D. Interview with Stacey Higginbotham. "Apple embraces IoT and SmartThings shakes things up." <i>Stacey on IoT</i> . June 2020.	Benson, Mark D. Interview with Labiba Boyd. "IoT for Smart Buildings." <i>Modern Tek News</i> , KZSU Stanford 90.1 FM. June 2017.
Benson, Mark D. Interview with Stacey Higginbotham. "SmartThings will kill legacy features to make a smarter home." <i>Stacey on IoT</i> . June 2020.	Benson, Mark D. Interview with Forbes. "Weakening Net Neutrality: What It Will Mean." <i>Forbes</i> . April 2017.
Benson, Mark D. Interview with Joe Williams. "Why Samsung's SmartThings arm is pivoting entirely into software." <i>Business Insider</i> . June 2020.	Benson, Mark D. Interview with Jack Sweeney. "Empowering the Internet of Things Generation." <i>Middle Market Executive</i> . April 2017.
Benson, Mark D. Interview with Patrick Hearn. "The Samsung Galaxy Home is still MIA. Will it ever be released?" <i>Digital Trends</i> . May 2020.	Benson, Mark D. Interview with Forbes. "My Toaster Hacked The Pentagon: What You Can Do To Secure Your IoT Devices." <i>Forbes</i> . March 2017.
Benson, Mark D. Interview with Dan Gunderman. "5 Reasons IoT Security is Becoming a Priority." <i>Cyber Security Hub</i> . July 2018.	Benson, Mark D. Interview with Forbes. "How To Shore Up Your Defenses Against DDoS Attacks." <i>Forbes</i> . February 2017.
Benson, Mark D. Interview with Dan Gunderman. "IoT Devices At Forefront Of Cyber Security Efforts." <i>Cyber Security Hub</i> . April 2018.	Benson, Mark D. Interview with Forbes. "Machine Learning and Analytics: What's Your First Step?" <i>Forbes</i> . February 2017.
Benson, Mark D. Interview with Forbes. "Nine Things That Are Poised To Impact Cybersecurity." <i>Forbes</i> . April 2018.	Benson, Mark D. Interview with Paul Korzeniowski. "Murano positions Exosite squarely in the IoT platform market melee." <i>TechTarget IoT Agenda</i> . October 2016.
Benson, Mark D. Interview with Linda Rosencrance. "Applying Smart Building Technology in Multi-Tenant Properties." <i>TechTarget</i> . March 2018.	Benson, Mark D. Interview with Brandon Lewis. "IT, OT, and vying for control of the IoT connectivity platform." <i>Embedded Computing Design</i> . October 2016.
Benson, Mark D. Interview with Forbes. "How To Tackle Big Challenges Associated With Cloud Migration." <i>Forbes</i> . March 2018.	Benson, Mark D. Interview with Larry Greenemeier. "Help Wanted: IoT Expertise." <i>The Economist</i> . May 2016.
Benson, Mark D. Interview with Forbes. "14 Ways AI Will Benefit or Harm Society." <i>Forbes</i> . March 2018.	Benson, Mark D. Interview with Stephanie Overby. "Wearables Go to Work." <i>CIO Magazine</i> . April 2016.
Benson, Mark D. Interview with Jim Romeo. "Smart Burgers: Smart Buildings Grow With Opportunity." <i>Electrical Contractor Magazine</i> . February 2018.	Benson, Mark D. Interview with Erik Linask. "Building Sticky Brand Loyalty With a Connected Product Strategy." <i>TMCnet</i> . February 2016.
Benson, Mark D. Interview with Alan Griffiths. "Trends and Innovations in Industrial IoT." <i>The Manufacturer</i> . November 2017.	Benson, Mark D. Interview with Brian Martucci. "Why MSP is The Once, Current and Future Internet of Things (IoT) Alley." <i>The Line Magazine</i> . April 2015.
Benson, Mark D. Interview with Dan Rafter. "Augmented Reality: AR Technology Finds Its Place in Manufacturing And Maintenance." <i>Distributed Energy Magazine</i> . November 2017.	Benson, Mark D. Interview with John Keller. "Small-Form-Factor Embedded Computing Shrinks Processing for Unmanned Vehicles and Other Tiny Applications." <i>Military & Aerospace Electronics Magazine</i> . July 2012.
Benson, Mark D. Interview with Alec Sears. "8 Mistakes That Derail IoT Projects." <i>Datafloq</i> . October 2017.	Benson, Mark D. Interview with Gareth Halfacree. "Make Money with Android 4.0." <i>Linux User & Developer Magazine UK</i> . January 2012.