

# Joseph Ellsworth

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Results oriented technologist with experience as Senior Director, Director, Principal Engineer, Principal architect, Enterprise Architect, CTO and CEO. He has remained hands on and enjoys making direct technical contributions. He has an extensive track record delivering very high scale, fast response distributed systems with ultra-high availability. He has been involved with the Web and Ecommerce since 1997 and was responsible for the first Web based configurator, Web based shopping mid-range shopping cart and Web based single sign-on identity management system deployed by HP a fortune 50 company. This includes successful deployments using next generation service oriented architectures optimized to be deployed on commodity grade hardware which can dramatically reduce costs while improving reliability. He is technically hands on, regularly writes software in multiple languages. He was responsible for XDisect a free-form database (data store) optimized for flexible schema collections across multiple sites where the range of data being collected grows continuously. He was the primary architect for GPS-SAFE which is a Java based mobile phone tracking system with boundary detection allowing real time web based mapping in years before it became widely available in the industry. He designs embedded sensing and control circuits which run directly on the CPU sometimes without an OS. His ability to work at the high end network scale while dropping all the way to the lowest level circuits allows him to deliver unique solutions which can be taken to market faster and at lower cost.

He is an acknowledged expert in high volume, high reliability Internet applications. He has been primary inventor for patented technologies in fields such as Web Services, Identity management, search algorithms, High scale SOA, High speed ecommerce especially the search, browse select experience. He has patents pending for harvesting water from air and renewable energy based cooling.

He is particularly effective at building and managing teams who solve complex problems and deliver industry leading solutions. He is a natural mentor and has successful experience in startup, VC and large companies. He has demonstrated the ability to deliver new products from idea through large-scale deployment.

## Areas of Expertise

<p><b>Corporate &amp; Management</b></p> <ul style="list-style-type: none"><li>• CTO, CEO, VP experience multiple companies.</li><li>• Product formulation from concept through delivery.</li><li>• Relentless drive towards corporate goals.</li><li>• Product design from basic requirements</li><li>• Team building and performance improvement</li><li>• Cross team architect and facilitator</li><li>• Successful start-up and Fortune 50 experience</li><li>• Building teams from 3 to 50 people</li><li>• Managing up to \$9 million budgets</li><li>• Sales and pre-sales technical expert</li><li>• Early recognition of probable impact from disruptive technologies.</li><li>• Core issue identification and resolution</li><li>• Executive briefing and technology strategy</li><li>• Mentoring and training</li></ul> <p><b>Energy and Conservation</b></p> <ul style="list-style-type: none"><li>• Extract water from air using solar energy</li><li>• Renewable cooling with less energy</li><li>• Thermal, electrical and financial modeling.</li><li>• N-Tier microcomputer assisted sensor integration</li><li>• Data center cooling with less energy</li></ul>	<p><b>Software &amp; Engineering</b></p> <ul style="list-style-type: none"><li>• Solr, and high performance distributed search systems.</li><li>• Distributed systems architecture</li><li>• High performance, High Availability Internet, Ecommerce, SSO and Identity management</li><li>• Fortune 50 Web, SSO, N-Tier multi-million user</li><li>• SOA, Web Service applications.</li><li>• Extensive XML including native XML database, DOM, XSL, XSLT, XPATH, REST</li><li>• Relational schema design and optimization</li><li>• Transformation and MOM middleware</li><li>• OOA, OOD, OOP, Java, Python, Ruby, SQL, C#, C++, Smalltalk, Win 3.1 API, VB, Windows, .Net, WinForms, CVS, etc.</li><li>• Performance troubleshooting and optimization</li><li>• RAD, Agile, Test Driven and feature driven development.</li><li>• Linux, Windows, HP/US, Solaris, etc</li></ul> <p><b>Embedded Control And Automation</b></p> <ul style="list-style-type: none"><li>• Automation and embedded control systems.</li><li>• AVR, MSP430, Zilog, Arm, etc</li><li>• Circuit design from discrete component / chips level includes firmware, prototype and test.</li></ul>
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|  | <ul style="list-style-type: none"><li>• Numerical positioning and Aiming</li><li>• Motor control, Stepper, DC &amp; AC</li><li>• TWI, I2C, SPI, I Wire, RS422, RS232</li><li>• High level scripting GCODE generation</li><li>• Alarm integration across incompatible architectures.</li><li>• J2ME, C,C++, Bascom, Windows CE, Palm</li><li>• GPS, GIS and telephony integration</li></ul> |
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## Experience and Accomplishments

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CTO / Principal Engineer: **A2WH, DBA** Bainbridge Island, WA 2008–Current

- Principal design engineer, thermal, electronics and firmware for patented technology which extracts water from air using solar energy.
- Provided product conceptual model, product goals and go to market strategy.
- Thermal and chemical modeling.
- Physical prototype including plastic fab, mechanical design and electronics.
- Product and technology vision, definition and implementation as CTO, Sales and pre-sales technical, Budgetary financial planning

Senior Director Search and Enterprise Architecture: **Corbis Images,** Seattle, WA May-2012 – April-2013

- Direct Search program for 2<sup>nd</sup> largest image and media business worldwide. Includes Solr search and related services.
- Search features for Industry leading / patent pending semantic (find similar) images.
- Advanced architectural features org wide.
- Key wording and metadata management
- Advance market transition strategy and planning.
- Accelerated ingest processes
- Accelerated delivery (camera to customer features) including Fast finely tuned filtered delivery of content to subscribing customers.
- Architectural approval for all major infrastructure changes.
- Direct emerging technology and rapid innovation programs.
- Also acting Senior Director for R&D and Development from July to Jan. Total org size over 80 people including budget and approval of plans for all development projects.

Director of Search and Enterprise Architecture: **Corbis Images,** Seattle, WA March-2011 – May-2012

- Direct Search initiative in 2<sup>nd</sup> largest photo and image business worldwide.
- Architect, design and manage deployment of new Solr based search engine.
- Search performance and Search experience improvements.
- Advanced new search features including visual search, semantic search and guided navigation.
- New measurement methodology for measuring impact of new features against user shopping activities.
- General architectural improvements consistent with modern Web architectures. Including REST retrofit of major services.

Senior Principal Enterprise Architect: **Corbis Images,** Seattle, WA Feb-2010 – March-2011

- Highest level technical contributor in the org. Corbis Images is #2 premium visual content provider in the world and is leading the industry with premium visual content. Web discovery and sales is a critical aspect of Corbis's future execution plans. Corbis is funded by Bill gates.
- Search performance and Search experience improvements.
- Improvements in logging and measurement to measure to the client delivery around the world.
- General architectural improvements consistent with modern Web architectures.
- Performance and experience hot spots especially for industry leading new capabilities.

- (Details confidential) One of approximately 50 principal engineers corporate wide sharing technical oversight over several thousand SDE engineers
- Principal SDE and architect working in the Website Application platform group within Amazon. This group is responsible for designing, building and managing Amazon's next generation web hosting platform.
- Amazon is the #1 Internet retailer in the world. They are also a fast growing averaging 30% growth per year while continually introducing new products and services. The size and rapid growth at Amazon present a number of interesting challenges which Joseph has helped address. Amazon has a very large and most complex SOA architecture including N tiers and many app server technologies.
- Joe's contributions have improved the code free configuration capability of the next generation web hosting platform. He has also established a technical architecture ideally suited to support Amazons growth to support next 10 years of growth at a lower cost and while delivering higher performance to the end user.
- Agile methodologies including scrum and scrum modified to improve product predictability.
- Also acted as Principal Product Manger for first 10 months. Principal product manager formulating strategy for taking Amazons Enterprise computing platform to market. (Details confidential) Extensive product design work centered around market facing SOA used to support next generation web products.
- Java, XML, REST, SOA, Erlang, Database and distributed systems, Python, Javascript.

- Product and technology vision, definition and implementation as CTO, Sales and pre-sales technical, Budgetary financial planning
- Web based mapping and user tracking using GPS enabled J2ME phones and GIS maps.
- Legacy and relational integration using MOM middleware server in C#.
- Mobile data collection client windows CE C#, .net, WinForms and XML based data driven data acquisition.
- Air to water using no grid power.
- Renewable cooling Air conditioning with 90% less electricity
- Data center cooling with 75% less electricity
- GPS based mailable registration card to meet Homeland Security and Department of Agriculture animal registration requirements intended to protect food chain in event of massive disease or attack.
- High level scripting library generating GCODE for CNC motion control
- Alarm detection and aggregation unit which collected alarm conditions from incompatible Telco equipment. output lines could be set directly from network events, SNMP status events
- Proficient in: C#, WinForms, C++, Bascom, GCODE, Ruby, VB, XSL, XML, DOM, XSLT, XPATH, SOA, Web Services, SQL, J2ME, J2SE, JavaScript, Jetty, AVR, MSP430, Linux, IIS, Apache, Tomcat, Jetty, JSP, ASP, Visual tools such as Labview, CVS, Agile, test driven and feature driven development, AVR and TI micro controllers, TWI, I2C, I Wire and SPI, Circuit design, PCB, prototyping, firmware and debugging.

- Development of product concept and market positioning as CTO
- Closed first \$1.5 million in sales and \$4 million investment round.
- Managed 9-person cross-functional team.
- Principle architect in developing XDISECT a native XML database with taxonomy constrained search and flexible schema.
  - Extensive high performance indexing and cross taxonomy search semantics.
  - Sophisticated parsing for data and semi fuzzy query semantics
  - Principal architect for multiple server replication in unreliable environment,
  - Load balanced SOA proxy for ultra high scalability and high availability web applications.
  - Advanced taxonomy constrained search,
  - Flexible and transparent support for rapidly changing schemas
  - XSL output transformation auto selection of client or server side XSL execution.
  - Ideal platform for large scale data warehouse and BI (Business Intelligence)
  - Advanced XSL based template expansion with embedded python scripting. Substantially exceeds PHP.
  - Patents filed on large scale flexible searching using semi fuzzy taxonomy constrained search.
  - Architected and deployed fortune 50 Portal with XML Web SSO, custom content delivery and identity aggregation
  - Key designer of major web portal at Hewlett Packard, who continued using the product through 2005.
  - Advanced security infrastructure through server plug-in (based on XDISECT).
  - SSO and identity management, advanced query and scripting language, XSL based web questionnaire,
- Proficient: Java, C, C++, XSL, XML, DOM, XSLT, XPATH, .NET, SOAP, SOA, Web Services, Python, SQL, GIS, JavaScript, DHTML, Linux, IIS, Apache, Tomcat, SSO, CVS, Identity management, Identity aggregation, portals and custom web content, Agile, test driven and feature driven development.

- **ESpeak Solutions** Program Manager
  - Managed up to 50 employees and a \$9 million budget
  - Principle architect for sophisticated distributed solutions which where predecessor to modern E-Services including the SOAP portion of .net
  - HP / Swatch universal entertainment portal unveiled at Comdex fall 1999 keynote. One of first location based and user characteristic sensitive systems for delivery of special offers.
  - Multimedia portable entertainment portal in conjunction with Nokia. First fortune 50 demonstration of mobile technology coupled with intelligent E-service matching, personalized content and location sensitivity to be demonstrated on mobile devices.
  - Ultra high performance SOA with transparent failover
  - Industry first broker based E-Service selection with cost and performance based routing.
  - Multiple HP patents.
- **Electronic Solutions Now**, Section Manager: SSO Web portal with custom content, 20-person team, \$2 million budget. Industry leading Fortune 50 Web portal one of the first large scale custom content and user profile based menus. HP patent on SSO based user aggregation.
- **Quote & Order Assistant**, project manager: Web configurator, search and shopping, 4-person team, \$1 million budget. First fortune 50 scale web shopping cart to include configuration of complex server products.
- **Watson Server**, Project manager: 9-person team, \$3 million budget
  - World wide server for 10,000 member sales force to SAP
  - SAP BAPI integration with data driven data integration.

- Driven Legacy system integration techniques
- Cross team integration architect
- MOM based integration middleware with firewall piercing
- Proficient: C++,C#, Java, XML, XSL, XSLT, DOM, Ruby, Python, VB, Perl, Javascript, SOA, Web Services, SQL, Oracle, Forte, IIS, Apache, Fast CGI, JSP, CVS, Code Safe, Identity management, Identity aggregation, portals and custom web content., RAD, Agile and feature driven development.

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**OOA, OOD, OOP Distributed systems Consultant: Nationwide 1990-1994**

- Object-oriented and distributed systems consulting to fortune 1000 companies
- Hewlett Packard, Northern Telecom, US Sprint, and Anderson Consulting
- Mentored leaders in companies beginning to adopt OO technologies
- Lead architect and team lead services to groups scaling their projects for deployment
- SAP Integration for SFA
- Regularly bailed out project teams in trouble. Quite often involved diagnosing key performance issues distributed database projects serving thousands of users.
- Proficient: C++, Smalltalk, Object Pascal, Prolog, VB, SQL, Oracle, OOA, OOD, OOP, RAD the predecessor to Agile and Test driven development, CVS, RCS, SourceSafe.

**Lead Developer, Architect and Sales: Busiware LLC, SLC Utah 1984-1990**

- P&L, sales, engineering, marketing, media, and support 1 to 5 person team
- Provided concept design, systems architecture
- Software analysis, architecture, design, implementation and integration
- Hardware OEM design, integration and installation most solutions
- Insurance claims administration, point of sale, municipal billing applications. RPG to C++ Translator
- Sales, design and implementation of photo-voltaic power systems
- Proficient: C++, Smalltalk, Object Pascal, Basic, Prolog, VB, QuickBasic, SQL, Oracle, Informix, Progress, OOA, OOD, OOP, RPG, AS/400
- 3 axis numerical control milling robot large format. Including PWM firmware and electronics design.

**Education**

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**Business Management and IT**

- Weber State College, Ogden Utah

**Additional Information**

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Honors / Awards

- 1998 – 2001 - Speaker at multiple identity management and identity aggregation conferences. Patents pending for environment heat operated distillation, air to water and renewable cooling. Patents for SSO and early SOA architecture work while at Hewlett Packard.
- 1985 Certified Real Estate license Utah
- 1987 ROA selling General Electric