

TNR Global

Scalable Web and Search Solutions™

TNR Global, LLC

Enterprise Search and
Cloud Computing for Enterprise

Capabilities Overview

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1. Introduction to TNR Global

TNR Global (TNR) is a systems design and integration company focused on enterprise search and cloud computing solutions. We develop scalable web-based search solutions built on the open source LAMP stack. We have over 10 years of hands-on experience in web systems and enterprise search implementations, both proprietary and open source. We specialize in FAST ESP and Lucene Solr search applications.

Reliability is key for any web system. Our systems design includes seamless handling of hardware failure through service mirroring and failover modes. We keep your systems running 24/7. TNR Global works with monitoring software, including Ganglia, Nagios, Munin and monit to prevent degradation problems and service outages. With our sophisticated alert system, we are able to detect and fix potential problems before they interfere with performance.

Scalability is at the core of the systems we develop. We have extensive experience with cloud computing technologies, specifically Amazon Elastic Compute Cloud (EC2). We have implemented both development and large scale multi-node production systems in the cloud. Our cloud computing expertise complements our search expertise; search systems often require scalable computing resources. With a cloud based platform, we have access to virtually unlimited resources and can deploy and scale enterprise search systems quickly and efficiently.

2. Our Clients

We offer enterprise search consulting and integration services for:

- Vertical search engines, web-based directories, information portals
- News sites, large blogs, content intensive websites
- Software as a Service (SaaS) application developers and startups
- Current Lucene Solr users and application developers
- Current Linux based Fast ESP users and integrators
- Management Information Systems (MIS) administrators
- Corporate data administrators, HR Departments
- Web-based customer support centers

3. Our Solutions

- Design, architecture, development, and implementation of custom search solutions
- Consulting about planning and best practices for search implementation
- Scaling, performance optimization, and tuning of search systems
- Development of vertical search enginesmu;
- Database and file-system indexing, web crawling, and searching
- Structured and unstructured content indexing, custom scoring/ranking, identifying related searches
- Large-scale indexing and searching, distributed search
- Performance troubleshooting (slow queries, high memory usage)
- Document parsing and information extraction
- Crawling web resources: CMS based sites, blogs, forums, static html, pdfs, docs
- Content processing and conversion
- Content enhancement and extraction
- PDF search results by page, multi-page indexing, and multi-page image caching
- Search and database integration

4. Technical Qualifications: Enterprise Search Expertise

TNR Global provides enterprise search implementation services throughout the entire development cycle. We help evaluate different open source and commercial options, audit existing solutions, implement new solutions, upgrade existing solutions, and provide ongoing support for our clients' systems.

We specialize in Lucene Solr, Nutch, and Lemur/Indri implementations. In addition, we have extensive experience with the commercial FAST ESP (Enterprise Search Platform) solution. We provide full migration services from FAST ESP to Lucene Solr.

- Audit of existing enterprise search solution and evaluation of available options for improvement.
- Implementation of a new solution and training of client staff. During the implementation process, we will help you choose the best solution for your case, specify and procure hardware or a cloud based solution, integrate enterprise search with your existing systems and information sources, conduct user testing, and conduct proper benchmarking procedures.
- Continued service includes upgrades, support, improvement and maintenance of the implemented solution. This is the most extensive type of engagement, where TNR Global is retained to work in partnership with the client to continue addressing client's organizational, IT, and enterprise search goals.

We have configured, mirrored, scaled and maintained enterprise level search systems in a rigorous production environment. We employ search solutions to index web files and database content. Our implementations support standard formats such as text, HTML, XML, and PDF, as well as custom formats to meet our clients' need for virtually any search application.

We leverage the power of Lucene Solr combined with the latest content enhancement approaches to provide diversified search service offerings for clients. Through years of hands-on experience, we have acquired a deep understanding of search and the subtle nuances of data.

Areas of Specialized Expertise Include

- Content extraction technologies
- Document classification technologies
- Information extraction technologies
- Custom document tagging pipeline stage development for associating database content with web content based upon document URL
- Custom dependency-based content build and feeding systems
- Low-level search engine architecture and search/relevancy algorithms
- Benchmarking and performance tuning
- Proven content backup & recovery techniques

FAST ESP (Enterprise Search Platform) specific areas of expertise include

- Configuring, mirroring and scaling ESP systems using various architectural layouts, inclusive in the cloud
- Access to low-level undocumented ESP XML-RPC APIs for better integration
- FAST Index XML repartitioning tools for content volume scaling
- Ajax / Web 2.0 ESP-Suggest functionality integration that uses actual ESP query logs

TNR Global has been working with Amazon Web Services and specifically Elastic Compute Cloud (EC2) services to help mid-size to large companies leverage the benefits of the cloud computing platform. We have used cloud computing to implement large scale multi-node search systems both for development and production purposes. Due to our expertise with Amazon EC2 technologies, we are able to help customers reduce deployment cycles from months to weeks, or in some cases, to days.

Cloud computing technologies offer application providers, publishers, and researchers increased agility/time-to market, elasticity, minimal capital expenditure, and pay-as-you-go pricing. With the new technology, application vendors can offer faster deployments for their customers without needing to go through a full cycle of hardware specifications, procurement, and configuration at internal and third party data centers.

TNR Global provides expertise on the full spectrum of services related to Amazon Web Services. We provide cost estimates for comparing application hosting 'in the cloud' to traditional methods, and provide efficient configuration and creation of EC2 instances. We specialize in methodologies and tools that help in migration, porting, testing and emulating applications in the cloud. We use a combination of open source and commercial applications for monitoring and security. We offer file encryption on EC2 and code audits for ALS (Application Layer Security). Our expertise in building custom images on EC2 allows us to offer unique solutions tailored for each customer.

5. Why Lucene SOLR?

Apache Lucene is a high-performance, full-featured text search engine library written entirely in Java. Solr is an enterprise level search platform from the Apache Lucene project, built using Lucene Java, with XML/HTTP and JSON/Python/Ruby APIs. Solr's features include: hit highlighting, faceted search, caching, replication, and a web admin interface.

- Powerful - advanced query capabilities, faceting, full results processing, rich document processing, and more
- Fast - sub-second query performance
- Open Source - no licensing fees, complete source code, active development community

Lucene Solr is used for thousands of large scale search projects. Companies using Lucene Solr include Apple, CNET, Digg.com, FedEx, IBM, LinkedIn, Netflix, Zappos, Monster.com, Verizon, Twitter and MySpace.

6. Key Staff Member Expertise

Rich Roth, CEO/CTO

Rich Roth, CEO and CTO of TNR Global, has been in the computer field for over 35 years and is a well known expert in software design and in cross-platform computer technology. He has written numerous software products and articles, and given many speeches for technical and public audiences. He was Shepard in the Apache Foundation Gui-dev project.

Rich has been a UNIX user, administrator and developer since the early 1980's, and assisted with early business planning for RedHat Linux. In the mid-90's, he developed early web-based systems to service web developers and ISPs. He developed a remote hosted system in 1997 that ran for over 10 years. He has been working with Thomas Register, www.thomasnet.com, the largest industrial search engine on the web, for 10 years.

Michael McIntosh, VP of Search Technologies

Michael McIntosh leads the technology development and innovation efforts for TNR's search engine services. Michael brings 16+ years of experience in software development, large scale systems design and operation, both desktop and online consumer product development, high volume transaction processing and engineering management. He has extensive experience developing, integrating and maintaining search technology solutions for companies such as FAST Search and Lycos. He has hands-on expertise with many tools, technologies and platforms including: Java, Python, C#, .NET/Mono, PHP, Perl, Ajax, MySQL, HTML/XHTML, CSS, XML, and Unix/Linux.

He developed, integrated and managed the Search Engine Service solutions for Thomas Register's thomasnet.com industrial product search service. The service has an index of over six million documents and serves over six million queries a month.

Michael has performed search engine system upgrades / migrations over several major product releases by search vendors. Michael has performed many search cluster scalings from single node deployments all the way up to migrating and managing several multi-node clusters containing 12 or more nodes using cost-effective, readily available Linux servers. Within the last two years, he spearheaded migration efforts from physical servers used for search engine clusters to a cloud computing (Amazon EC2) platform.

Michael Klatsky, VP, System Administration

Michael Klatsky has over a decade of experience in developing and deploying highly-available internet systems. He is proficient in deploying Amazon Web Services for use in development and production systems. His industry expertise includes administration of authentication, authorization, and accounting systems, client/server architecture, wireless internet access networks, ISP architecture, distributed and cloud computing, particularly EC2, and single sign-on systems.

Michael is proficient in deploying databases (Oracle, MySQL, PostgreSQL, Berkeley DB, LDAP), mail servers (SMTP/POP/IMAP), wireless internet systems, clustering and HA Systems, VOIP technologies, messaging systems, and anti-spam/anti-virus systems.

Contact

For more information, please contact

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