

Andrew Newdigate

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Summary

Experienced engineering leader with 20+ years of experience delivering large-scale software projects. Currently focused on leading the engineering effort for GitLab Dedicated, a new isolated SAAS product for Enterprise and Federal customers. As an engineering leader, I believe my job is to help my team build consensus while avoiding groupthink, encourage pragmatism, to facilitate the definition of standards and processes, while avoiding cargo-cult programming, to mediate conflicts, and to foresee productivity blockers and remove them before they become a problem. I believe in establishing a long-term technical vision for a product, shared by the team, and achieved through hundreds of small incremental releases: in other words: Always Be Shipping. I believe the vision should be slowly, but constantly evolving — driven from the experience the team gleans from delivering the product, not from transient trends in the software industry.

Education

University of Cape Town, B.Sc in Computer Science

Jan 1996 – Jan 2000

Experience

Senior Distinguished Engineer, Infrastructure, GitLab – Remote

Aug 2023 – present

- Designed end-to-end automation from AWS Account and GCP Project creation through provisioning and configuration, with automated upgrades and day-two maintenance operations
- Designed for resilience as a geographically distributed product over multiple cloud provider regions
- Developed a comprehensive SLI/SLO monitoring solution based on the same monitoring used for GitLab.com
- Built as a multi-cloud solution with a single control-plane shared across GCP and AWS, using Workload Identity Federation to avoid long-lived secret tokens
- Implemented using Terraform, Ansible, Kubernetes, and Helm Charts, with Jsonnet used extensively for tenant configuration and rendering of configuration
- Control-plane runs as jobs in Kubernetes clusters running in GKE and EKS, with a customer-facing Rails frontend, Switchboard

Distinguished Engineer, Infrastructure, GitLab – Cape Town Area, South Africa

May 2019 – Aug 2023

- Directly helped technical bootstrap of the Scalability and Dedicated teams, and set the technical direction for the Platforms sub-department
- Drove Pre-IPO preparations to ensure stability of GitLab.com
- Created labkit and labkit-ruby, resolving the long-running problem around log structure in the application and production, and added tracing capabilities
- Created Tamland, a way to monitor and predict long-term trends to aid capacity planning
- Designed and drove the implementation of Service Catalog for GitLab.com services
- Drove the design of a single metrics catalog utilized by GitLab.com and GitLab Dedicated for greater efficiency between the two SaaS platforms
- Regular point of contact in engagements with self-managed customers during the rapid growth phase of GitLab.com (2019-2021), including demos and pre-sales discussions for some of the largest customers

Staff Engineer, Infrastructure, GitLab – Working Remotely from London June 2018 – May 2019

- Identified and documented single-points-of-failure, scaling, reliability and performance issues in the GitLab.com fleet
- Worked with the monitoring, production and application development teams to improve observability of the application and reduce mean-time-to-detection on infrastructure issues
- Proposed infrastructure changes to GitLab.com to address availability, performance and observability issues
- Worked with engineering teams to identify and prioritise application changes that would improve availability, scalability and performance of GitLab.com
- Built a roadmap with stakeholders within the infrastructure group, across engineering, product and finance
- Documented the existing infrastructure of GitLab.com
- Communicated about infrastructure and roadmap within the company and externally through blog posts

Interim Director of Infrastructure and Google Cloud Platform Migration Project Lead, Jan 2018 – June 2018
GitLab – Working Remotely from London

- Worked with multiple engineering teams across the company to ensure the transition of GitLab.com from Azure cloud to Google Cloud Platform
- Sourced, hired and managed three infrastructure teams (Production, Gitaly, Database)
- Measured and improved the happiness and productivity of the team
- Defined the agile development and continuous delivery process
- Drove quarterly OKRs (Objectives, Key-Results)
- Worked across sub-departments within engineering
- Responsible for the quality, security, availability, reliability and performance of GitLab.com

Git Infrastructure (Gitaly) Lead, GitLab – Working Remotely from London Jan 2017 – June 2018

- Defined the roadmap for Gitaly, tracked and published progress against the roadmap
- Established and iterated on an agile process for the new team
- Established quality assurance and testing procedures, rolled out feature flags for gradually ramping Gitaly usage up in the production environment
- Focused on tracking down performance, scaling and availability issues with the new service
- Worked with the team to establish an architecture for the product
- Recruitment for the team
- As part of GitLab's acquisition of Gitter, also led the effort to open-source the Gitter code-base

- Co-founder, CTO**, Gitter – London, United Kingdom Oct 2012 – Jan 2017
- Led the technology roadmap of the company
 - Led and implemented the architecture of application software, cloud infrastructure and client applications
 - Led the engineering and devops teams
 - Capacity planning and dealing with anything holding back team productivity (intra-personal conflicts, process problems, technical debt)
 - Built a modern cloud-based app on universal/isomorphic JavaScript using node.js, MongoDB, Redis, ElasticSearch, Neo4j, Marionette, lodash, Backbone, ReactJS, with hybrid applications for desktop, iOS and Android
 - Automated provisioning, deployment and reliability operations using Ansible, Jenkins, monit, Datadog, PagerDuty, Nomad and Consul
 - Only a handful of self-inflicted outages over four years; mitigated each problem to prevent recurrence
 - At last check, platform had over 1.2M registered users and 800K monthly uniques
 - Maintained a hands-on approach: writing and reviewing code, profiling and correcting production performance issues, working alongside the devops engineer to build out the EC2-based infrastructure, and dealing with PagerDuty alerts
- Senior Software Engineer**, Barclays Wealth – London, United Kingdom Oct 2011 – Oct 2012
- Java + Spring Framework + Spring MVC
 - ExtJS front-end
 - SOAP
- Senior Software Engineer**, Daiwa Capital Markets Europe Ltd – City of London, United Kingdom Feb 2011 – Sept 2011
- Writing Java code, plus some Scala
 - Ensuring the correct execution of overnight batch processing
 - Integrating new data-sources
 - Collecting requirements from risk analysts in the risk team and ensuring their implementation
 - Built using Java, Scala, Servlets, Apache CXF for REST, Apache Camel for integration, Oracle 11g, MS SQL Server 2008, and Elasticsearch for text indexing
- Career Break: Round the World Trip**, Time Off For Travel – South Asia, South East Asia, Australia/NZ, Pacific, South America Oct 2009 – Jan 2011
- Senior Developer, Client Solutions Business**, iShares.com | Barclays Global Investors (now BlackRock) – City of London, London June 2006 – Oct 2009
- Java, J2EE, Hibernate
 - Spring Framework
 - Google Web Toolkit (GWT) and ExtGWT
 - Clustered MapReduce processing using Oracle Coherence
 - Member of company-wide technology steering committee
 - Led a company-wide developer forum, organising social events and inviting external and internal speakers on engineering topics

- Owner**, Datatribe Software Ltd – London, United Kingdom Nov 2003 – Aug 2007
- Implemented using Server-Side JavaScript with Active Server Pages, Microsoft COM+ Transactions, Microsoft Message Queue, Microsoft SMTP server, and Microsoft SQL Server
 - Built specifically for one client, iHotDesk, while retaining ownership of the software
 - Allowed the client to scale from monitoring a few dozen servers to many hundreds of servers, while alerting on more problems than would otherwise be detected
- Senior Developer**, Barclays Capital – London, United Kingdom July 2005 – June 2006
- J2EE
 - Spring Framework
 - Hibernate
 - Client-side JavaScript
 - AJAX
- Principal Consultant**, 7irene – London, United Kingdom May 2004 – May 2005
- Clients included The General Medical Council (UK), Dixons Store Group, and Moliere
- Senior Developer (Contract)**, GlaxoSmithKline – Essex, United Kingdom May 2002 – Dec 2003
- Delphi development of Microsoft COM, MTS and COM+ components
 - Oracle Database development
 - Integration with a large variety of industrial automation machinery for performing the HTC process
- Senior Developer (Contract)**, Linc Communications – Cape Town, South Africa Dec 2000 – Apr 2002
- Lead Developer**, Tradesuite – Cape Town, South Africa Jan 1998 – Jan 2000
- Senior Developer - Internet Solutions**, Dimension Data – Cape Town, South Africa Apr 1998 – Oct 1998
- Software Developer**, UUNET – Cape Town, South Africa Apr 1996 – Mar 1998
- Perl / mod_perl
 - HTML and JavaScript
 - C
 - mSQL and MySQL
 - Oracle
 - VB6

Projects

labkit and labkit-ruby

- Created libraries that resolved a long-running problem around log structure in the GitLab application and production, and added tracing capabilities.

Tamland

- Tool for monitoring and predicting long-term trends to aid capacity planning for GitLab.com.

Service Catalog

- Designed and drove the implementation of Service Catalog for GitLab.com services.

Metrics Catalog

- Drove the design of a single metrics catalog utilised by both GitLab.com and GitLab Dedicated, allowing for greater efficiency between the two SaaS platforms.

Gitaly

- Led the Git Infrastructure team at GitLab from inception, building the Gitaly Git RPC service to handle thousands of Git operations per second across the GitLab.com fleet.

ServerMetrics

Nov 2003

- Server monitoring tool designed for monitoring offsite servers running behind client firewalls. Built for iHotDesk, allowing the client to scale from monitoring a few dozen servers to many hundreds of servers.