

# Lawrence Kelly

San Diego, CA - Email me on Indeed: [indeed.com/r/Lawrence-Kelly/bdb152e105fdebdb](https://www.indeed.com/r/Lawrence-Kelly/bdb152e105fdebdb)

Authorized to work in the US for any employer

## WORK EXPERIENCE

### **Database designer, developer, admin**

Illumina - San Diego, CA - August 2016 to Present

Responsible for the complete set up of open source database (Mysql/Postgres) infrastructure for all aspects. From installations to backups, tuning etc.

Developed code to automate day to day support for existing SQL server DBAs

Postgres/Mysql upgrades/tuning/hot backups/logical backups

All documented and hand over to DBAs within a short timeframe, Presented git version control, how to run scripts written.

Install, optimization and design of Mongodb, for improved architected collections, documents. ETL using mongoimport designed to give easier report by designing documents to group data in meaningful sets reducing the need for complex joins.

Tableau installs, set up and support provided, developed reports and visualizations for various teams and management.

Reports written in SQL to produce data insights to large TB data, as well as R and Tableau.

### **Database Developer/Administrator**

Google - San Diego, CA - March 2016 to July 2016

Sole resource for a complete new system build, my main focus was to design and implement a new MySQL/Linux database system to support highly numerical data input from various sources. Consulted with managers, developers and various stakeholders to gain insight in to the requirements as the first stage. The system was evolving rapidly by python developers and myself and so the database model was also iterative and complex, I simplified and shared the model using MySQL workbench. I developed python code for data loading of CSVs, writing interfaces to be called by other developers code, procedures also called by Python for simplicity and unit testing. I modelled the database logically with the MySQL workbench tool and produced all the physical scripts to automate a generic DB build of the DB and python code. All relationships defined and DB procedures, python code developed to manage ETL, business logic, functionality in the Database. Project completed in within aggressive deadlines, system fully documented and staff trained for support, backups, replication configured.

### **Postgres/Mongodb Database administrator**

Calamp - San Diego, CA - August 2015 to December 2015

August 2015 to December 2015

I redesigned and re architected Postgres environments to improve SQL performance and simplify complex joins, introduced a much needed degree of denormalization. All DB architecture designed and deployed by me, working daily with developers. Continual SQL tuning; working with developers to improve complex and large queries, large loads, table structure changes. Pgbadger used to benchmark system to assist DB and O/S tuning. I upgraded all of Postgres 9.1 to 9.4 to all prod, test, QA, dev environments. This included Upgrades to the replication tools; 2nd quadrants repmgr, pgbouncer. Three Postgres DB nodes added to improve scalability and TPS throughput.

- Postgres master to master with slave copies to provide fault tolerance, performance and OLAP nodes used for reporting.
- Python using MySQLdb developed database reports and dashboard interfaces to MySQL warehouse.
- Worked closely daily with developers for various issues, new SQL code, large data issues, large data loads.
- Problems such as tagging solved using hstore column for key value pairs. JSON columns used to store large json data.
- Pgbadger, pgbench used to benchmark and monitor all aspects of DB, from TPS to hot tables, index usage, stats, autovacuum issues and more.
- Problems with larger over indexed tables resolved using pg\_repack to avoid autovacuum slow down issues.
- Development of the MongoDB data warehouse project, responsible for designing the Mongo Documents/ Collections.
- Large volumes of log files loaded from Postgres and other sysadmin log sources to Mongo.
- Developed dashboards and reports from MongoDB for business.
- Gray log implemented and supported for large data mining, data loaded via a SAN to access all the DB and other logs; huge cost saving over Splunk.

### **MySQL/Postgres Database architect/admin**

Xenoncons.com - 2015 to January 2015

to August

Redesign of complex MySQL (Gallera, Tungsten), Postgres and MongoDB environments to provide improved throughput and performance of master master/slave high transaction (10k TPS) very large DBs hosted on Linux, with hardware and replicated standby systems.

- Postgres (repmgr) and Oracles MySQL in production had scalability issues; I supported the ongoing operations as well as providing procedures for ETL solutions, better scalability via adding more nodes, sharding, DB redesign, improved SQL, better tool usage. Approx 20 Postgres and 30 MySQL databases supported and 2TB in size. Used pygrametl and develop ETL process to load data 3 billion rows to MySQL warehouse.
- Python scripts developed to monitor the database envs for uptime, performance and replication issues. ETL jobs written in Python wrappers for ETL loads to warehouse.
- MongoDB installations carried out for multiple teams, query optimization, mongostat used to improve performance, other hardware software configuration for improved throughput etc.
- Managed and designed a key Data warehouse to have more denormalized objects and improved SQL and partitioning.
- Set up of reporting dashboards for business analyst team for ad hoc reports. Using dataface and other BI tools, web site builds to allow quick access to large data sets using materialized objects.
- Initial Deployment of Gallera for automated master master management with 10 slaves for load balancing. Architected data warehouse using Tungsten for log mining to Kafka.
- Developed procedures for new database functionality, ETL, finance features. Writing of SQL and Procedures daily for reports and ad hoc functionality.

Postgres consisted of two main master DB using clustered repmgr to switchover to a standby copy, then a replicated copy designed and configured for failover for a geographical site outage. MySQL also clustered at the REL level using cluster software with up to 3 masters in some envs. All of this work documented thoroughly for training and ongoing support.

### **BI/Data scientist/DBA**

www.telmate.com - March 2014 to November 2014

Designed, built and Managed all aspects of a 1TB mariadb mysql@4.5k TPS master to master environments with multiple slaves to balance performance and provide 24 hour delayed standby. Focus architecting scale out to cope with demand and future growth, scalearc, scalebase considered as well as partitioning, sharding, sql tuning the full gamut of options proposed and deployed. Through DB expertise and analysis reduced costs substantially for running of production environments. Resolving critical issues in data slippage, config, uptime; to ensure a robust and stable DB infra with no downtime.

- MS sqlserver 2008/2012 database environments installed/upgraded and supported for Tableau application.
- Large SQL server 2012 D/W tuning for scalability using replication to produce read only DBs to handle read only queries.
- Procedures written to handle ETL and aggregate the largest tables to allow accurate timely denormalized reporting. Worked closely with CFO and financial team to enhance Tableau and create reports to be emailed and also created dashboards for ad hoc access.
- Working closely with devops in a scrum/agile env, all deploys reviewed and modified to work without 'halting' the system.
- Daily use of github, JIRA, confluence, WIKI; the common web startup tools. Wearing multiple hats to enhance performance across all of the DB infrastructure.
- Built BI dash boards using manual MVs to allow instance access to BIG data for business analysts.
- Application developed for Jasper, R, salesforce tools used by business analysts. Cassandra for titandb (graph DB) optimized for edge case reporting. Elastic search used across 10 servers, SSDs and fusion I/O cards, for BIG data reporting on larger tables (800 million rows). Spider engine implemented for long. lat. indexing in MySQL. Postgres deployed and optimized with hot standby and multiple slaves.
- As I was the sole resource, I was involved in a multitude of DB/BI day to day and long term work and projects, as well as being on call.

Palominodb/blackbirdit ( became Pythian )

Lead Database architect

[www.palominodb.com](http://www.palominodb.com)

### **Database Developer/Administrator**

Pinterest, Hautelook, Zendesk, Activision, University - September 2013 to March 2014

Remote support of high profile clients web sites; Pinterest, Hautelook, Zendesk, Activision, University of Berkeley, Chegg. DB systems included complex d/w to high volume terabyte OLTP startups using varying database platforms and versions; MS sqlserver 2005/2008/2012, mysql (percona, oracle, opensource) on 5.1.5, 5.5, postgres 8.1 with SLONY replication, 9.1, 9.2, mongodb. Cassandra, hadoop, SQL Server and Oracle.

Responsible for many client projects and databases ongoing support, all aspects from backup to replication, ETL, production troubleshooting, performance tuning, sql optimization, upgrading, patching. Liaise with multiple clients including onsite consultation to ensure new systems architecture is robust and able to grow whilst supporting existing multiple vendor database systems.

Clients include UCB, Pinterest, Zendesk, Hautelook (Nordstrom), Stumbleupon, One Kings Lane and Petflow to name just a few. Clients have varied environments with some up to 100TB highly sharded with ruby, chef puppet. With others at 10TB Postgres with bare metal, others using amazon aws/rds hosting or rackspace hosting.

### **Lead DBA**

Matson - Oakland, CA - April 2013 to September 2013

Responsible for the support and releases of SQL to 20 MySQL 5.5, 14 postgres 9.1.12, 10 Oracle 11.2.4, 10 MS SQL 2005/2008 database environments.

- Installation and setup of postgres and MySQL 5.5 databases for new projects including tuning of postgresql.conf and my.cnf for all settings such as slow query log, user access, checkpoint, WAL sizing, buffer settings, innodb cache, innodb\_flush\_log\_at\_trx\_commit, table\_cache, key buffer cache etc and implementation of postgres/mysqlbackup/dumps etc.
- Architected and set up of multiple MySQL standby databases. Management of all SQL implemented to different environments including SQL and database tuning. In depth knowledge and experience of MySQL tuning, using triggers, procedures, security and standbys.
- Migration of 5 Oracle Enterprise 10G to Oracle standard 11G carried out. Management of all aspects of project, scripting manual standby/backup scripts, performance tuning and testing scripting, RMAN scripts and tests carried out.
- Fourteen Oracle 11g standard databases built to test five critical applications with standby databases, manual switchovers and failovers tested. Backups using warm backups tested with scripts using GNU parallel for O/S parallel channels. Oracle trace, tkprof and Toad used to measure performance of the new 11g Standard databases.
- Support of Oracle 10g and MySQL databases for various systems including Hyperion, JBOSS and Weblogic. Daily implementation of SQL to Oracle and MySQL environments with assistance in tuning as needed.

### **Lead DBA architect/developer**

MobiTV - Emeryville, CA - September 2011 to January 2013

Lead DBA architect/developer, responsible for a multi-platform database infrastructure of 40 databases, 12 Oracle, 18 MySQL, 10 postgres with several Hadoop and Cassandra databases. I was responsible for all aspects of QA, engineering and production with 10 QA admins and up to 20 engineers. Architected the 4TB SAP Business Objects Oracle Datawarehouse to improve performance and optimize sql queries as required, BI team with 10 analysts. Databases consisted of Oracle 10g/11g, MySQL 4/5.0 and 5.5 Enterprise and Postgres 9.1, with standbys and replication. I continually architected and developed a variety of solutions for the three DBA member team to implement and support in production. Databases architected for warehouse and OLTP systems for performance. Warehouse redesigned to denormalize/normalize and improve ETL, reports using summary tables, MVs. OLTP systems SQL tuned for performance. Security and auditing applied across the estate. Oracle RAC architected and installed and Refreshes of up to 32 QA/dev databases using rman standbys reengineered to impdp/expdp. I architected and implemented the migration of Oracle to postgres and mysql to postgres databases for a 60% cost saving.

- Support of 4.1.4 Mysql databases and migration to the new 5.5.
- Four Mysql Enterprise 5.5 architected and Installed using innodb/barracuda with Percona tools for Oracle mysql 5.5 Enterprise. Database set up with replicated slave standbys.
- High level of shell scripting daily using python, perl, shell scripts for automation of monitoring, data ingestion/ETL, load testing.
- MySQL databases from legacy 4.1 to 5.5 supported and data migrated to and from MySQL as required.
- Architected ETL solution for the 4TB SAP Business Objects datawarehouse on an ongoing basis. PL/SQL used for ETL staging table cleansing and load optimization, using bulk collects, merge and append hints, query refactoring, mvs. Also support of WEBI database and daily scrums with different teams for agile development.
- Implementation and support of Hadoop, Cassandra and other nosql databases, databases deployed and ETL written to ingest and load, scrub data for reports and large data dumps.
- Implemented security at all levels, securing accounts and introducing auditing for system level actions. Architected all aspects of security including auditing with IBM Qradar.
- Installation and setup, optimization of MS SQL server.

- Migrated production environments to reduced number of hosts for efficiency and streamlining. Hardware, license and administrative costs reduced. Open source hammerora used for load testing.
- Redesigned refresh mechanism for QA and dev environments reducing costs further of admin for the 15 QA/dev envs.
- Oracle databases tuned and optimized across the whole estate. SQL tuning, parameter tuning, shell scripting etc.
- Daily enhancements and solutions provided to large SQL and PL/SQL issues on the 4 TB datawarehouse. Continual optimization via SQL tuning, using multiple techniques, tracing queries using analytical functions, bitmap indexes. Reduced ETL job loads from 9 hours to 2 using analytical functions, bitmap indexes and hints for example.

## **DBA for AHL**

Man Group PLC - London - June 2010 to July 2011

Man is a large financial investment house using algorithmic trading for \$71 bill of client funds. Responsible for the support of the main production trading system hosted on 11g/linux database with over 8000 transactions per second and 1.2 TB. All database collateral managed and implemented in production and dev through change control system. Shell scripting and experience of PERL, C, C++, java, nosql and Postgres from support and implementations of ETL, front and back end trade systems. Large development env of 20 databases refreshed daily via rman and impdp/expdp. Executed a full system switchover and back to rman standby site for disaster recovery testing. Build of servers and 11g database environments using cascading standby to build production volume environment.

- Responsible for production 10g/11g databases 1TB, with high transactions up to 8,000 per second for algorithmic trading. Many new features/solutions employed; partitioning, SQL tuning constantly.

Multiple projects managed using DAILY scrums with developers using JIRA project tracking to monitor tight deliverables and timelines including

- Complete Datawarehouse architecture, logical and physical design and implementation.
- Mysql 5.1 and Postgres database implemented for syslog and linux stats capture and logging. ETL process designed for both databases for different teams, linux sysadmins and devops.
- Mysql and postgres systems documented and teams mentored on the usage of syslog ETL systems to each database,
- Managed in depth security project for oracle accounts and database access to safeguard IP. Implementation of Oracle wallets as a solution for db access.
- PYTHON/Perl solutions developed for ETL and security trade systems.
- Shell scripting/PL/SQL development for various tasks; audit reports, ETL etc.
- Oracle APEX 4.0.1 deployed and developed for intranet applications.
- Data volume reduction and redesign of production system
- Piloting of SSD, testing of performance using tkprof etc
- Oracle Real Application Testing employed to use Oracle Replay for load testing.
- Audit of entire Oracle estate deployed and reports emailed daily via PL/SQL packages

Monster Worldwide Inc. - San Francisco, CA, US (web site services; supporting www.monster.com and subsidiaries www.tickle.com, www.lovehappens.com, www.ringo.com and www.military.com)

Lead DBA

## **Lead DBA and architect**

Monster - San Francisco, CA - July 2006 to April 2010

Database admin for Oracle, Mysql and SQL server; 70.20.10 split. Managed all Responsibilities of environment from SQL tuning to backup and restore best practices with 2 DBAs and 7 developers. Resolved SQL, PL/SQL issues for performance with development team daily.

- Management of four 9i/10G 2TB production databases for web sites with up to 2000 transactions per second based on Oracle/Linux/netapps and supporting dev, test environments. www.tickle.com, with 40 million members hosted on a three node 9i RAC environment with OCFS.
- Architected and built 3TB Data mart for email to members and MIS reporting. Data replicated for reporting and mailing from four prod databases using MVs and streams.
- Implemented and responsible for all DDL/DML collateral, PL/SQL, indexes, function based indexes, triggers as the SPOC for change control maintained, tuning and high standards of code realized. All Oracle tools used, TOAD, OEM grid, Oracle Developer etc.
- Very large data sets built as Dashboards, web site built for reporting using Oracle APEX and Shell scripting to provide ad hoc reports to management and business analysts.
- Developed asp .net web pages for web sites with MS visual web developer, MS SQL server.
- Achieved critical performance gains working with optimizing developers SQL, PL/SQL through system tuning, SQL, PL/SQL tuning and database architecture, from cursor settings, AMM to bulk collects and derived tables.
- Expert experience of internals and SQL applied to ensure web site performance was maintained for large web site reengineering. Expert use of cutting edge technology used to keep performance and rock solid uptime, online table redefinitions, analytical functions; automatic partitioning by PL/SQL.
- Created and implemented RMAN catalog backups for all Oracle instances.
- OEM grid implemented for management of database architecture.
- Managed the Database design and modeling for all new projects using Erwin and Oracle Designer.
- Managed Oracle applications 11.5.10 implementation and support.
- Hired two staff to support rapidly growing environment.

### **Senior DBA/developer**

Wells Fargo - San Francisco, CA - June 2005 to July 2006

PL/SQL development using Oracle 10G to design and develop inter bank account transfer online application. Interface specification and Functional Specification documentation produced.

- Implemented Oracle streams replication to replace the existing Quests Shareplex replication tool. As the single "go to" person, frequently liased with Pat McElroy, Oracle Streams product manager.
- Achieved huge cost savings made by ensuring the streams implementation was both smooth and effective. Complex bottlenecks and tuning gave high replication yield making Oracle streams an improved and free option to Quests expensive Shareplex.
- Led many complex efforts to tune large batch jobs that were failing due to past 9i to 10g upgrade. Focusing on indexing; index cost adjustment, stats collection and SQL tuning to ensure the batch jobs would complete.

### **Senior Oracle DBA/developer**

Royal Bank of Scotland - London - July 2004 to June 2005

- Designed and developed Mortgage Intermediary (TPI) application, allowing up to 15,000 mortgage brokers to quote RBS mortgage products online simultaneously.
- ETL for TPI developed and employed using unix arrays and Oracle Index Organized Tables to achieve efficient staged and re runable load process from larger General Mortgage system.
- Performance tuning and 24/7/365 support of 6 x 1Tb Oracle 8.1.7.4.0 GMC mortgage databases hosted on Sun Solaris F15 servers using EMC, SRDF linked SAN environment. Large team of 30 DBAs delivered the Summit General Mortgage Compliance system.
- Management of Design, development and Deployment of Web based mortgage broker database. Defined capacity plan, build documents. Development of schemas, PL/SQL, DDL, shell scripts for database system.

ETL feeds from mainframe and main Mortgage 1TB database environment developed. Performance issues for ETL overcome using Index Organized Tables.

- Long running queries and locked objects identified and data/SQL corrected. Many performance bottlenecks resolved through improved stats collection, tuning of SQL joins, improved function usage, tuning Oracle Multi threaded server.
- RMAN implemented for online backups of 1 TB production environments.
- Implementation of 9i RAC database environment hosted on Sun Solaris environment. Problems with node failover resolved.
- Design and installation of 10G RAC database environment with Dataguard hosted on Sun Solaris environment for GMC mortgage.

### **Oracle DBA**

Reuters - London - November 2003 to July 2004

- Lead DBA to a team of six system integrators supporting 7-tier Windows 2003 advanced server environment hosting Reuters News to Web application.
  - Extensive experience gained of TIBCO rendezvous, CISCO firewalls and BEA Weblogic server 7/8. Mentored colleagues in the use of Oracle Technologies. Install/support of SQL server 2000.
  - Critical performance improvements gained through PL/SQL tuning and applying advanced knowledge and skills.
  - Deployment and support of RMAN, Dataguard, Quest monitoring products and OEM utilities.
- VNU Business Publications - London, UK, Europe (Print/New online Media sector)

### **Oracle Apps DBA/developer**

VNU Business publications (new media web company) - London - December 2000 to November 2003

- Oracle DBA managing support and upgrade of 50Gb Oracle E-business Applications environments - AR/AP/GL/CM 10.7SC on HP 10.20 platform to 11.5.3/4 on Solaris 2.8. Shell scripts and PL/SQL developed for financial functionality within the apps stack.
- www.newmonday.com web site Oracle database reengineered to integrate as a tab within the www.vnunet.com web site
- Migration of 50 GB production Oracle Financials database from 10.7 SC on HP 10.20 to 11.5.4 on E450 Solaris 2.8.
- Implementation and development of Oracle Discoverer 3.1.3.6 for customised financial reporting.
- Responsible for Support and administration of multiple web sites including www.vnunet.com and www.accountancyage.com hosted on Oracle 8.1.7 and Sun Solaris.
- Working with team of java developers to build websites and troubleshoot production problems. PL/SQL
- Created and tuned Packages and shell scripts for web page data and image display/retrieval.
- Shell scripts and PL/SQL packages written for web site functionality from emailing subscribers, new web page design to web features.

### **Oracle DBA**

PricewaterhouseCoopers - London, OH - September 1996 to December 2000

Sysdamin team of 5 tasked with implementing Oracle databases and peoplesoft application throughout 28 European countries on a mixed platform of windows and Sun unix. Many implementations and upgrades handled solely and as part of a team within differing environments, Peoplesoft application implemented, database built, backups configured.

Lotus Notes system developed to capture European system environments for hardware and software.

Architectural design, install and support of large Oracle infrastructure with 50 instances within the sysadmin/dba team.

Implemented a 12 server Windows Domain for various Oracle database applications including Peoplesoft, Business Objects, Datawarehouses, Taxpoint, Oracle applications 10.7sc and Oracle fail safe, NT cluster. Led an implementation of best practice for datawarehouse implementations using Oracle designer, Erwin and Platinum allowing choice within the business units.

Implemented Oracle Applications Financials 10.7, 11i; modules CM, GL, PA, AR, PA

Implemented and supported 20 SQLServer 7.0 databases on windows platform.

Production support of Sco Unix, Ingres datawarehouses on Intel PCs, backups and restores carried out often for copies of data to business managers.

Replication designed and implemented using snapshots and MVs between Oracle Financials and Business Objects.

### **Branch manager of high street branch**

Barclays Bank - London - September 1986 to April 1993

- Responsible for the management of a Barclays Bank high street branch with eight staff members. Highly professional customer service and relationship building used to increase branch profits and customer base.
- Increased profits in branch through new business and cross marketing to existing customers to exceed sales targets.

### **EDUCATION**

#### **BS in Computer science**

Middlesex university - London, OH

September 1993 to May 1996

### **SKILLS**

Linux (5 years), Oracle 10G/11G (10+ years), MySQL (7 years), postgres (5 years), Windows Server 2003/8 (10+ years), mongodb (4 years), Tableau (5 years), MS SQL server (7 years)

### **CERTIFICATIONS/LICENSES**

#### **Oracle OCP**

March 2011