



# Continuent™ Tungsten Enterprise Solutions

Continuous Data Availability  
and Performance Scaling  
Solutions from Industry Experts

## Professional Services White Paper

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## Continuous Data Availability Services

Continuous data availability means having your data available when and where you need with consistently fast response times. This is the key requirement for databases operating in today's 24/7 environments.

Achieving continuous data availability is always the goal but there are many steps along the way where outside expertise is not only helpful but also critical to success. Here are some of the key ways that experts can help.

- Identifying the problem. Complete data availability and infinitely scalable performance are expensive. To get ROI on solutions, you need to focus on the problems that really matter for your business.
- Identifying matching solutions. There are many ways to achieve continuous data availability, each with different solutions that have different trade-offs.
- Implementing solutions. There is a high learning curve for continuous data availability with many pitfalls even when the overall solution design seems obvious. Expert guidance at the right time can save weeks or even months on project schedules.
- Diagnosing problems. Fixing existing systems is often far better than building something new. Experts can diagnose and fix problems efficiently, allowing you to get full value from your previous investment.

Continuent has specialized in database clustering and replication for many years and has industry-leading experience in solving problems in continuous data availability.

We offer particular expertise in MySQL, PostgreSQL, and Oracle databases running in a wide variety of environments. We provide a broad view of these problems that takes into consideration not just specific database technology but takes into consideration the business problem you are trying to solve.

## Industry Experts for Tough Problems

Getting the right people is key to success in the highly technical engagements characteristic of problems in database high availability, scaling, and integration. Through our own staff as well as specialized partners like 2nd Quadrant, we give you access to industry experts who don't just lecture about problems, but are leaders in writing the software that solves them. Our team includes the following:

Hands-on industry-specific expertise.

**Robert Hodges** – CTO and architect of Continuent's Tungsten clustering and replication products. Robert is a well-known contributor and speaker in the open source database community and has decades of experience in relational databases and distributed systems.

**Edward Archibald** – Chief Architect, Designer of Continuent's innovative SQL Routing and management products. Ed has many years of experience

in database internals and connectivity. Among many other accomplishments, Ed was one of the original designers of the ODBC standard used by Microsoft as well as the Sybase Replication Server (the first successful replication product for relational databases).

**Simon Riggs** -- Principal Consultant at 2ndQuadrant. He is the Recovery and Replication Architect for the PostgreSQL project, where he has developed key features like point-in-time recovery and is leading development on hot standby. Simon has more than 20 years experience as a database architect on very large, performance-critical systems, with technical certifications on Oracle, Teradata and DB2.

Our consultants have expertise not just in databases and distributed systems but also a wide range of associated technologies including, application stacks and operating system services that are part of your operating environment. We offer a full-systems view that ensures you get full business solutions rather than just narrowly focused technical answers.

Continuent has extensive contacts within the MySQL, PostgreSQL, and Oracle communities. We gladly partner with your existing service vendors to deliver superior professional services or we can recommend additional resources as needed to solve your particular problem.

## Professional Services Offerings

Continuent services cover the full range of tasks required to build and maintain solutions for continuous data availability. These cover the main requirements and solutions for issues in data protection, high availability, performance, and data integration.

A complete range of offerings for continuous data availability

Requirements analysis and architecture is critical to getting projects on track and keeping them there. Continuent offers a number of packages to address this topic.

- **Database Data Availability Workshop (2-4 days)** -- Collaborative workshop to specify detailed requirements for data availability, analyze problems inherent to meeting those requirements, and provide practical, robust options for solutions.
- **Database Performance Workshop (2-4 days)** -- Collaborative workshop to specify detailed requirements for database performance, analyze problems inherent to meeting those requirements, and provide practical, robust options for solutions.
- **Database Replication and Clustering Workshop (2-4 days)** -- A collaborative workshop to specify requirements for applying database replication and clustering, examine existing implementations, diagnose problems, and identify robust solutions based on state-of-the-art technologies. We help you fix problems with existing systems, build for the future, or both

We offer a second set of consulting services around product implementation and deployment.

- **Database Health Check (1 day)** – A one-day offering to check your current database and application configuration, as well as provide tuning and availability tips necessary to get the most out of your chosen data availability solution.
- **Easy HA/Easy Scale Jump Start (1 day)** – A one-day offering that covers product installation, configuration, and education. This is included automatically in product sales.
- **Easy HA Plus/Tungsten Enterprise Jump Start (2 days)**– A more in-depth Jump Start for Continuent's advanced data continuity offerings. This is likewise included automatically in product sales.
- **Proof-of-Concept (POC) Implementation (4 days)**. Rapidly builds a proof-of-concept including implementation of replication, failover, load balancing, and other important features based on user requirements as determined in a previous workshop engagement. The POC also includes testing of management procedures, as well as a demonstration of capabilities in load tests.

Finally, Continuent offers custom services in 5-day blocks based on a statement of work (SOW) as well as on-going individual consulting for special projects. Please check with us for additional details.

## Professional Services Delivery

Short engagements such as jump starts or health checks are typically delivered remotely using web conferences. This allows greater scheduling flexibility and faster start-up - both beneficial to customers.

Longer engagements may be delivered either remotely or on site. In the case of on-site delivery, prices will also include reasonable expenses for travel as well lodging while on site.

## Summary And More Information

Tungsten commercial solutions help users harness innovative open source technologies to provide continuous data availability that meets the needs of enterprises from small to large. Tungsten offers features that are critical to ensuring that databases operate efficiently and economically under a wide range of conditions.

Tungsten Enterprise solutions and services are available from Continuent, a Continuous Data Availability Company.

Our website is [www.continuent.com](http://www.continuent.com), and you may download an evaluation version of Tungsten Enterprise at [www.continuent.com/software](http://www.continuent.com/software).

Tungsten Open Source components are available at the Continuent Community web site [www.continuent.com/community](http://www.continuent.com/community).

# Exhibit A: Tungsten Product Features

Number of Servers	Easy HA 1+1	Easy HA Plus 1+1	Easy Scale 1+N	Enterprise 1+N	Site License N*(1+N)
<b>High Availability</b>					
1+1 database replication	●	●	●	●	●
Seamless slave promotion and master failover	●	●	●	●	●
Zero data-loss with planned failover	●	●	●	●	●
Master recovery and fallback	●	●	●	●	●
Fail-safe data application on slave	●	●	●	●	●
Automated consistency checks	●	●	●	●	●
Integrated backup/restore	●	●	●	●	●
Simple management	●	●	●	●	●
Admin security	●	●	●	●	●
<b>Advanced High Availability</b>					
Zero data-loss with emergency failover		●		●	●
Recovery from admin data deletion		●		●	●
Automated failover		●		●	●
Zero downtime upgrade		●		●	●
<b>Database Performance Scaling</b>					
1+N database replication			●	●	●
Load balancing of reads			●	●	●
Automatic detection of new slaves			●	●	●
Automatic tracking of slave latency			●	●	●
<b>Enterprise Clustering and Replication</b>					
High performance parallel replication				●	●
Data partitioning/sharding support				●	●
Session consistency model load balancing				●	●
Scheduled backups				●	●
Bi-directional replication with conflict resolution				●	●
Secure transport and data encryption				●	●
<b>Cloud Operation</b>					
RightScale scripts and server templates	●	●	●	●	●
Amazon EC2 enabled	●	●	●	●	●
GoGrid enabled	●	●	●	●	●
Rackspace/Mosso enabled	●	●	●	●	●
<b>Data Integration</b>					
Extend to new data sources	●	●	●	●	●
Hooks for data transformation	●	●	●	●	●
Replication to/from applications				●	●
Replication to/from message bus software				●	●
Replication to any JDBC-enabled database				●	●
<b>Documentation, Deployment &amp; Support</b>					
Professional documentation	●	●	●	●	●
Quick installation and certified builds	●	●	●	●	●
8x5 email support	●	●	●	●	●
24x7 enterprise support		●		●	●
Custom bug fixes				●	●
Guaranteed response time				●	●