‘A busy day for an online betting shop is like Black Friday at Amazon, only prices change every second.’

Martin Davies Head of Technology at bet365
**BREAK FROM THE PACK WITH ERLANG**

**VIRTUAL GASOLINE**

**ONLINE GAMBLING & BETTING**

**ARE YOU STUCK IN THE INNOVATION-SCALE DILEMMA?**

Which of the following applies to you?

- You need to continuously create and improve on games and bets
- Your ability to innovate quickly diminishes as you scale up
- You spend time rewriting software to run at the scale needed
- Getting an innovation to scale often delays its release

If you ticked two of the above points, it’s highly likely that you’re stuck in a little something we like to call the innovation-scale dilemma. In this industry, your systems must not only meet the demands of high frequency requests and traffic bursts, but also keep tech-savvy, multi-channel customers engaged.

To meet user demand, bookmakers continuously create and improve on new types of games and bets. Over a certain number of users, the ability to innovate quickly is lost. Precious time is spent rewriting software so that it runs to scale, slowing release time.

To break this innovation-scale dilemma, the most innovative industry players – such as bet365 and William Hill – have chosen to partner with us on Erlang and Elixir technology. With the support of millions of lightweight processes, Erlang allows you to build massively concurrent and fault tolerant applications very quickly. With Erlang, your outputs are easier to predict, debug, and analyse.

We have experience redeveloping segments of existing betting architectures in Erlang, giving companies more in-house control over their systems. These segments include wallets, bet settlement functionality, in-play betting, etc.

**WE WORK WITH 5 OF THE LARGEST ONLINE BETTING SHOPS**

**IN-PLAY PRODUCT DEVELOPMENT**

We have developed a product that enables players to close bets early by taking data from constantly changing markets, and uses it to calculate what every bet is worth for every user at any point in time. For every single market change the system re-computes all the games deployed on a particular platform.

**REAL-TIME LIVE ODDS**

Build an in-house system that pushes the live odds of hundreds of thousands of sporting events to millions of customers in real time. In production, our Erlang system connects 10 times more users than the previous Java solution and supports data changing at four times the previous rate.

**MAXIMUM UPTIME & RELIABILITY**

We have built platforms for rapid game development designed so that a generic API provides access to all the games deployed on a particular platform. New components can be added to the platform easily and without affecting uptime.

**MANAGING MULTIPLE DATA STREAMS**

We use Erlang to centralise multiple data streams coming from various suppliers to betting companies into a single stream. In production, the system translates and formats supplier data into our clients’ data system. All in real-time.

**ERLANG TOOL KIT FOR ONLINE GAMBLING & BETTING**

We have unrivalled experience in building scalable Erlang systems for the Online Gambling & Betting sector. We also support global payment companies, messaging companies, and IoT – all of whom face similar technical challenges to online bookmakers.

**ERLANG + ELIXIR CONSULTANCY**

- Build reliable, scalable, and concurrent apps

**RIAK SUPPORT**

- Support mission critical Riak applications 24/7
- Get 24/7 global support for the Riak Suite. Built in Erlang, Riak KV’s NoSQL database offers enormous availability, replication, and monitoring. Making it the perfect storage solution for player data, session storage, and global data locality.

**RABBITMQ**

- Robust messaging between applications
- RabbitMQ’s plugin architecture was built with flexibility in mind. The result? It easily supports the world’s most popular open-source message queueing protocols, such as STOMP, MQTT, and RESTful.

**WOMBAT OAM**

- Take full control of your applications
- Our operations and maintenance application for Erlang and Elixir systems. It provides complete visibility over your systems, giving you full access to system topology, metrics, notifications and alarms.

**QUICKCHECK**

- Eradicate arbitrage opportunities
- QuickCheck is a property-based testing tool that performs automatic Monte Carlo probes of the arbitrage space and pre-emptively discovers arbitrage issues within your book. Minimise arbitrage opportunities and reduce your risk.

**AND MORE...**

See what you can do with Erlang in Online Gambling & Betting:

www.erlang-solutions.com/betting

**ERLANG DATA NAVIGATION**

We help keep our client’s businesses moving

From startups to Fortune 500 companies our technical know-how is the backbone to our clients’ operations. We develop and build trusted, fault tolerant systems that can scale to billions of users.

www.erlang-solutions.com
### HOW DOES ERLANG RESOLVE CHALLENGES FACED BY THE ONLINE GAMBLING & BETTING INDUSTRY?

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<th>CHALLENGES</th>
<th>ERLANG SOLUTIONS</th>
<th>YOUR BENEFITS</th>
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<td><strong>INNOVATION</strong></td>
<td>Release new products and features fast and often to keep an upper hand on the market.</td>
<td>With support for millions of lightweight processes, Erlang allows you to build massively concurrent and fault tolerant applications very quickly. Erlang’s functional paradigm makes program outputs much easier to predict, therefore easier to debug and analyse. Profound reduction in the complexity of the code base and a significant increase in the speed of product delivery.</td>
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<td><strong>SCALE</strong></td>
<td>Applications must scale and behave predictably during high traffic or sudden peaks in demand.</td>
<td>With its background in Telecoms, Erlang excels in handling request explosions and multiplexing - the generation of a cascade of requests starting from a single event - a cascade that can span hundreds of servers in a coherent way that maintains request delivery order. You no longer need to constantly re-write your software to run at the scale needed by the business. Increase from 10s of thousands to 100s of thousands of users supported on a single machine.</td>
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<td><strong>RELIABILITY</strong></td>
<td>If your system crashes, it needs to recover so quickly no one will ever notice it failed.</td>
<td>Erlang’s concurrency, the no-shared memory architecture and its built-in ‘fail and recover’ approach make it behave extremely gracefully and predictably under highly variable stochastic load. This makes Erlang ideal to build critical gambling and betting systems on. Build extremely fault-tolerant systems where processes are able to monitor and – in case of a process termination – restart each other very swiftly.</td>
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<td><strong>SPEED &amp; UPTIME</strong>&lt;br&gt;Release fast with as little downtime as possible.</td>
<td>Erlang is designed for 24/7 applications allowing the dynamic upgrading of running production systems. With its built-in support for distributed code delivery you can upgrade a farm of servers from one host.</td>
<td>Release new features, bug fixes and updates with little downtime.</td>
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<td><strong>REAL TIME</strong>&lt;br&gt;Information about odds needs to be delivered fast enough so it is still valid and actionable during the time a user places a bet.</td>
<td>Because of Erlang’s soft real time properties inherited from the telephony world, reactions to external events occur in microseconds allowing for timely responses.</td>
<td>Get information out as fast as possible with the lowest latency possible.</td>
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<td><strong>FUTURE PROOFING</strong>&lt;br&gt;Adopting a new technology can be daunting: can you find the right resources for your legacy system in the future?</td>
<td>Erlang was open sourced in 1998 and is now taught in universities. It is battle tested, with a growing base of companies using it and a very active community. A good developer will pick up Erlang in a few weeks and we provide many online resources, training courses and conferences all over the world.</td>
<td>Use a technology designed specifically for scalability, concurrency and resilience which does these things extremely well and has withstood the test of time for 30 years.</td>
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We help keep our client’s businesses moving.

For our Online Gambling & Betting clients, including bet365 and William Hill, we build, scale and customise in-play and gaming platforms; we develop built-in mechanism to assist in Fairness Testing and we provide real-time stats, automatic transaction recovery in case of failure and integrated/pluggable payment systems.

www.erlang-solutions.com