

## Burst transmissions

### VoLTE = VoIMS = One Voice

*LTE, the 4th-generation mobile network standard from 3GPP, has recently been positioned mostly as a bearer for packet switched data services and as perhaps therefore a successor to WiMax and WiFi. That positioning reflects the mobile industry's hope of increasing its ARPU through data traffic, and its despair of increasing its voice traffic revenues. But while data services provide a market rationale for LTE RANs (and especially for LTE Femtocells), LTE's unlikely to make much headway without offering an effective voice service.*

LTE, like some of the later 3G network standard releases, specifies an all-IP network following IMS standards. 3GPP has been working with IMS since the early Noughties, and has supported the development of an elaborate architecture supporting a very rich feature set. However, the implementation of IMS in 3G networks has however been patchy, at the best. That's perhaps because a 3G RAN doesn't necessitate packet mode voice traffic, or because there really hasn't been very much consumer interest in the kind of hybrid voice/data services that IMS's advanced features support. But it's also definitely because the 3GPP IMS standards specify several different ways to implement single functions, and so make full compliance costly to achieve.

IPL has gained a lot of IMS implementation experience over the past decade, and it's telling that almost all of IPL's IMS work has been to address the challenges of interfacing between islands of IMS and the surrounding ocean of SS7 circuit mode signalling.

Now a group of network operators and product vendors has released the "One Voice" Voice over IMS profile (V1.0.0, 2009-11). The profile defines a minimal feature set supporting simple voice and SMS services, and makes a single selection wherever the IMS standards offer alternatives. It seems that now, the success of IMS depends critically on the market pull of LTE; and that the success of LTE depends on the credibility of the new, stripped-down, IMS.

### 25 and 30

The 25th anniversary of cellular communications in the UK follows close after the 30th anniversary of IPL's formation. The parallels are irresistible: cellular services in the UK have been consistently profitable for their operators, and have transformed their users' lives through their versatility, accessibility, speed and affordability.

**Microsoft**  
**GOLD CERTIFIED**

*Partner*

IPL uses Microsoft products in its telecoms, broadcast and new media applications; so for some years, Microsoft has certified IPL as a partner. Now Microsoft has recognized IPL's strengths in custom development, web development, data management and business intelligence, by awarding IPL Gold Partner status.

### Digital Britons

IPL has been privileged to help the Technology Strategy Board to fulfil its strategy in support of the Digital Britain agenda. Vital to this strategy is the provision of a Digital Britain Test Bed, to allow businesses and users to explore the effects of alternative network operating models, business models and service platforms. The Technology Strategy Board has consulted with the ICT and content industries to scope the Digital Britain Test Bed, and with IPL's help has launched a public procurement for the information systems to support it.



### Mobile application

The NPIA and the Department for Transport have selected IPL as the supplier to develop software for CRASH, a new Collision Recording And SHaring service. CRASH will allow police officers to quickly enter information on either a handheld computer or a vehicle data-terminal, rather than filling in paper forms.



It will use details entered at the scene to retrieve data directly from the Police National Computer, enabling officers to check driver documents without the driver having to produce them. It will automatically send information to the Department for Transport, to quickly identify road accident hotspots and so reduce the number of road-users killed or injured. This mobile data application will help to save lives and reduce police paperwork.

### IPLsec

"Information Security" is a phrase to chill the blood of any telco systems architect. Immediately one thinks of the embarrassing leak, the TV coverage, the lawsuits and the new career. Rather more positively, IPL's information security, which has developed over thirty years of defence-grade security practice, has recently been awarded ISO 27001 certification. This covers information security management for all of IPL's business activities, whether at its offices or on customer premises.

ISO 27001 is widely seen as best practice by corporations and governments around the world, and suppliers are routinely required to achieve the standard as a condition of UK supply contracts. IPL consultants are available to help our clients to benefit from our ISO 27001 experience.

## What's this?

- Welcome to IPL's newsletter for telecoms, broadcast and new media businesses.
- As one of the UK's leading software houses serving this converged industry, we're well placed to report on what's going on.
- Our newsletter offers industry news and light-hearted opinion, and reviews some of IPL's most interesting recent projects.

## Inside...

- Innovator Interview: technology entrepreneur Michael James explains what new product originators need from their software partners.
- How IPL Technical Launch Services help technology startups to get their products off the ground.
- Other People's Babies: how IPL Application Sustainability Assurance looks after your application software with all the care and capability of a trained nanny.



Well ahead of expectation, IPL has extended its sponsorship of Bath Rugby by a further 12 months. In a few short months we have established a very strong relationship with the club. We also are delighted by the exceptionally positive feedback we've had from our clients, business partners, staff and the local community. It makes great business sense for us to continue the sponsorship for at least another year.

# Innovator Interview

*IPL customer Michael James has many years of experience as a high technology entrepreneur. Telecasting asked him to share some of his experience in software-intensive product startups.*

**Telecasting:** At what point in a product's development do you call in the software specialists?

**Michael James:** Often a product needs software design input from before the very first prototypes. For a company which doesn't count software as its core expertise, moving from paper to a first prototype is a difficult transition. We may have an idea which we think is precise, but we have so little understanding about its implications for the operation of software, that we absolutely require expert help to make any progress at all if potential investors require evidence that the idea can be delivered.

**Telecasting:** Do you ever find it difficult to get the software reliability that your product needs?

**Michael James:** I think this is a real challenge, but possibly not in the obvious sense that your question meant. For example, product designers can find it difficult to think about all the possible ways in which a user interface might fail, either due to misuse, or (which was a much more difficult thing to analyse) due to unpredictability in the product's environment. It can require a great deal of work to anticipate all the potential external events, and it's important to find a software supplier that can do the sort of analysis that's needed to achieve reliability in this respect. For me, IPL's input has been absolutely essential in getting this right. A product recall because of software unreliability would

be catastrophic for a new product, and any product developer needs to control that risk; not all software specialists have the software reliability skills to do that.

**Telecasting:** In choosing a software partner, do you look for more than just technical capability?

**Michael James:** Generally, yes. It's not enough to find someone who can do the early prototypes. A software partner needs to be big enough to take on the whole software development. I would be reluctant to take on a project where I had to use one developer for one aspect and another to deal with something else. And as product investors are always anxious to control their risk, it's very helpful to use a software partner with a known and trusted name. I chose to use IPL on the basis of a recommendation from a person I trusted, and I'm happy to pass that recommendation on.

**Telecasting:** Is getting the software for a composite hardware/software product very different from developing a pure software product?

**Michael James:** Getting good communication between hardware and software development teams is critical. You need a software supplier that gives very clear visibility of what it's doing, and that can work comfortably with very technical information from the hardware team. And often the hardware development lead time means that the software developer has to be able to get very close to software completion before the hardware is ready. Not every developer has the design discipline to do that but I must say that IPL were really excellent in this respect.

*Michael James is Chairman of Fertility Innovations Ltd.*



## Technical Launch Services

Many of IPL's customers are new technology startups. They need to get effective demonstrator products into the market quickly and economically, but they also need to be able to follow seamlessly through with production-grade versions as soon as the market demands them. They need software that's doing new and untried things, often using emerging software technologies, but they also need the confidence in delivery dates that's expected of mature technologies. IPL offers services which are designed to meet these challenges.

IPL is small enough for its directors to be in direct contact with all of its customers, no matter how small, and to take a real interest in fostering its customers' businesses. Many of IPL's best and most established customers began as very small enterprises with a very close partnership with IPL. We're flexible enough to supply staff for short periods, at short notice, and at very cost-effective rates. On the other hand, we're big enough to have a huge range and depth of in-house technology expertise, and to be able to carry even the largest software products through their full life cycle. Our designers and programmers are, first and foremost, trained software engineers; everything that they do, even in the most chaotic of startup environments, is done with care and attention to detail. The result is that demonstrator software from

IPL is reliably demonstrable, and makes a well documented basis for production grade product development.

Though IPL works with a large number of small businesses, it's best known as a supplier to some of the most respected household brand names; there's hardly a major UK network operator, or network product originator, which doesn't know and trust IPL. So for a small business, having IPL's name on its software gives a great boost to its product credibility.

IPL's work is almost without exception in fields where there are few established products, and where the software technologies are still emerging. Our design management and quality systems have been designed from the start to adapt every IPL project so that it applies reliable and dependable project governance to new and changing technologies. The result is that when IPL commits to a software delivery date, that's the date that the software will be delivered; and that when IPL says that the software will do X, that is what it does. But IPL doesn't just slavishly commit to doing whatever the client asks for: IPL engineers probe, question and challenge the client's assumptions, and bring IPL's huge depth of market and technology experience to bear on each new problem. IPL does indeed do what it says on the tin, but first, IPL makes sure that the tin says the right thing on it!

To learn more about how IPL can help with new product developments, talk to your IPL contact, or read some of the customer quotes on [www.ipl.com](http://www.ipl.com).

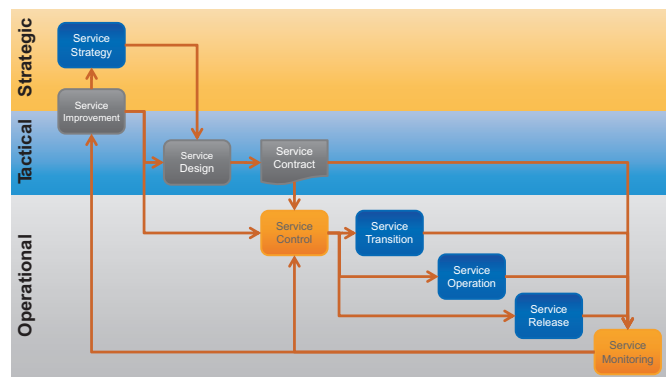
**Editor's email raffle: the first person to email [clive.tomlinson@ipl.com](mailto:clive.tomlinson@ipl.com) with subject "Thermae 6" will receive a ticket for two to Bath's Thermae Spa - see [www.thermaebathspa.com](http://www.thermaebathspa.com).**

# Application Sustainability Assurance

IPL built its reputation as the development partner to rely on to deliver exactly the right software, on schedule and to the highest quality. Since 2000, IPL has turned its attention to delivering the same precision, efficiency and flexibility of service in software application support, via IPL's Application Sustainability Assurance (ASA) service. ASA support means support where nothing is left to chance.

## Sustainability by design

Each ASA service is specifically designed to meet the particular customer's needs, taking into account the several natures of the application software, of the customer's business, and of the customer's long term intentions for the application. We work pro-actively with our client to develop a service contract documenting a clearly defined service scope and agreed service levels, based on our client's needs and their incident history to date. Where the client wishes, we integrate its specific procedures and document standards into our ASA, Information Security Management System and Quality Management System, so that IPL's support service can take on the look and feel of our client's own support processes. We design a client-specific service, by profiling our ASA: to match our client's specific needs for service continuity, service availability and support capacity; and to integrate any third party support elements that our client's application needs. And we confirm its technical and organizational feasibility.



## Transfer to IPL ASA without risk

A vital part of ASA is the management of the transfer of an application into IPL's care, and we do that with the meticulous attention to detail that marks all our work. Application owners often retain unsatisfactory support arrangements because of the perceived risks associated with transferring to a new support provider. IPL understands the real risks, and IPL's ASA addresses them head-on. When we embark on ASA service transition, nothing is left to chance. A detailed transition plan, approved both by our client and by our management team, shows clearly how every aspect of the transition will be done, checked, and managed.

On the basis of the special characteristics of the client's application, we assign appropriate staff in our committed support team; where necessary, we train them in the application technology; always, we have them study the client's application in depth.

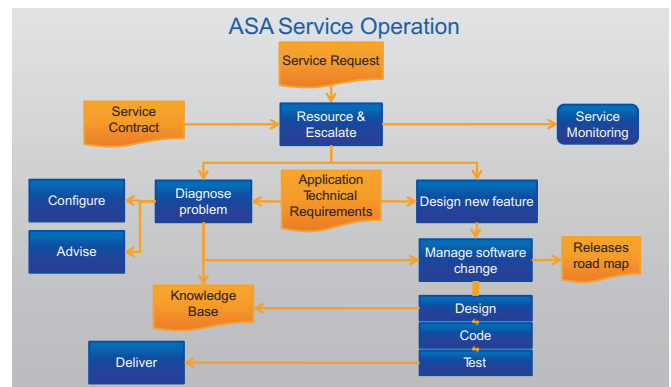
To demonstrate technical readiness, we build a complete software image of the application, compare this with our client's current live software image, and we formally test our software image to prove its correctness.

When all the transition activities are done, we meet with our client to formally agree that all the requirements for Operational Readiness have

## Why ASA?

Businesses choose IPL's application support when they want a service that's completely reliable, that's flexible to meet their evolving needs, that's backed by a large and utterly dependable organization, and that delivers the very best value for money.

When a business decides to outsource its application support to a service partner, it needs to make certain that the transfer will go without a hitch; any hesitation in the support service may undermine user confidence, or worse, affect the business's operation. IPL's Application Sustainability Assurance (ASA) service provides support services that consistently deliver outstanding responsiveness, flexibility, security, reliability and cost control.



been met, and to authorize commencement of support.

## Integrated support

IPL's ASA delivers both incident management and application feature enhancement via a single interface. The customer sends its ASA service requests to a single point of contact, where they are routed, according to the scope of the service contract, to incident resolution or feature development. Incident resolution is often simply a matter of providing expert advice quickly, supported by a knowledge base derived from the design process; or of correcting the application's configuration in the field. Where software changes are required, they either rolled up into planned releases, where time and priority allow; or delivered more urgently as ad hoc releases or patches.

## Backed by heavyweights

IPL's ASA processes use the same staff who do IPL's application development work, typically on a rotation basis. That means that ASA support is delivered by real software experts, who bring the insights of the software design discipline to the diagnostic and remedial process. It also means that ASA can draw on IPL's full complement of over 200 practising engineers, should an incident need it.

## Optimization by layered feedback

IPL constantly monitors the operation of its ASA services. In the operational time frame, IPL checks the operational service against the agreed service contract, and controls the service processes (for example, by adding resources from IPL's large engineering staff) so that the customer's expectations are consistently met or exceeded.

In the tactical time frame, IPL regularly checks the service design, to offer the customer options for adjusting the service contract to better meet its needs. And in the strategic time frame, IPL routinely reviews the whole ASA programme, to ensure that it continues to match market needs.

### IPL clients write

**"We carried out an exhaustive search for a supplier that could take over the support of [our application] without introducing an unacceptable level of risk. The chosen supplier would also have to be capable of providing a responsive and high-quality development service to deliver the enhancements that are necessary to meet our needs as they evolve in today's ever-changing environment. The organisation that met those criteria most closely was IPL."**

**"Actually appear to live the culture of customer support and commitment. Deliver what they say they are going to deliver when they say they are going to deliver."**

# Backward channel

## Book of words

### A recursive animal

*It was something of a shock to see a book on the Erlang language in the catalogue of the respected O'Reilly. Not because there's anything disreputable about Erlang, but because it has hitherto rather languished among the shadowy exotica of software engineering. This book shines a very clear light on the language, and may help to bring it into the mainstream usage that it deserves.*

Erlang is essentially a functional, declarative language. Using it has such elegance, simplicity and purity that it feels like being in the Garden of Eden. No reassignment of variables; no implied state; no communicating through shared data: these all encourage neat, lucid design, and contribute to Erlang's strength as a telecoms development language. But for those who have had their brains fuddled by the slow-acting toxin of imperative languages, there's a very steep unlearning-curve to follow.

Erlang Programming makes the relearning experience efficient and often pleasant. It takes a tutorial approach, leading the reader steadily from simple ideas to difficult ones. The language is simple and direct, with the clarity of expression that only real experts can achieve.

Functional programming, iteration by recursion (whence the kangaroo on the cover), Erlang's radical approach to error trapping, and the elegance of its support for multiprocessor systems, are all presented in great depth, yet without loss of clarity.

The book's enlivened by many box panels. Most of them present invaluable insights ("The reason for not having a more elaborate type system is that none of the Erlang inventors knew how to write one..."). A few of them perhaps betray the authors' largely academic background ("Telecom applications do not rely on string operations"), but these don't confuse the book's clarity of message.

## Noisy signal

### Helpful EC

The European Commission has obliged its Member States to reserve the number range starting with 116 for services "of social value", and Ofcom recently allocated some 116 numbers to UK organizations. For example, in the UK, 116123 will route to Samaritans: abroad, it will route to local equivalents.

Any help to charities like these can only be welcomed, but it's hard not to question the benefit to UK citizens abroad. If for example I were feeling blue in Lithuania, I think I'd want to call an Anglophone from Samaritans in the UK. Even at my brightest, I can't speak Lietuvių Kalba. IPL's number, from all European states, is +441225IPL000.

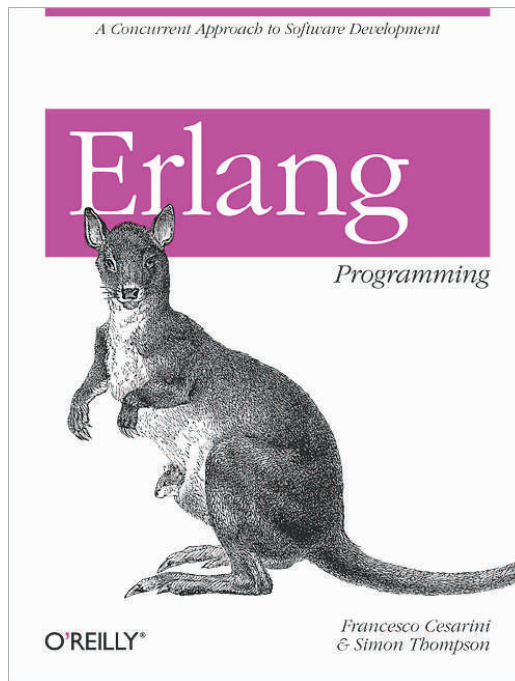
### Gaelic reality

The Government's introduction to the Digital Economy Bill enthuses inter alia that "With the launch of BBC Alba, a high quality and extensive Gaelic television service is now available." Today's Alba schedule lists precisely one programme, which is this:

*Tha Anne Mhoireasdan shuas ann an Obar Dheathainn 's i a' coinneachadh ri Marion agus Geoff air thoiseach air an latha mòr aca sna Hearradh.*

In the spirit of Accessibility for All, for our few non-Gaelophone readers, that says "Anne Morrison travels to Aberdeen to meet Marion and Geoff ahead of their wedding in Harris." If that's what the DEB chaps call extensive and high quality, then I despair.

This heavyweight book won't make summer beach reading, and it's perhaps a bit too detailed for a reader who just wants a quick introduction. But for someone with a serious need to write Erlang, and to design and think in the elegant style that it supports, this book offers the perfect education.



*Erlang Programming: Francesco Cesarini & Simon Thompson; O'Reilly, 2009; ISBN: 9780596518189; £38.50.*

### 3DTV improves spectrum usage

Sky's announcement of 3DTV services from 2010 can only be good news. Not because anybody ought to want to watch anything so silly as TV in 3D, but because 3DTV will inevitably occupy more spectrum per channel than sad old 2DTV.

More spectrum per channel will, with a bit of luck, mean fewer channels. Idiot's lantern channels such as *CBS Reality*, *Bravo 2* and the all too rightly named *The Unexplained Channel* can only be placeholders until their spectrum is given a better use. In that context, even 3DTV will count as better.

And with a bit of luck, 3DTV will be followed by superHD3DfeeloTV at 10 gazillibits per channel. Then we can look forward to having perhaps just 3 channels: the broadcasting environment which fostered the industry's best and lasting work.

### Universal feebleband

At the last NICC Open Forum, a gentleman from the Department of Business, Innovation and Skills clarified the "Universal Broadband" service that our government plans to provide. He explained that the "2 megabits for all" headline really means "up to 2 megabits for all". If only we could apply the up to rule to the taxes that will fund it.

## Access network

Unless you are already working with IPL, your first point of contact with us should be our business development manager for the Telecoms, Broadcast and New Media sector:

### Chris Uren



Chris dreams of being on *Mastermind*. Put your questions to him on +44 (0) 1225 475264 or at [chris.uren@ipl.com](mailto:chris.uren@ipl.com).

# IPL

intelligent business

IPL is an IT services company specializing in delivering intelligent business solutions. We help our clients to exploit their information assets to yield tangible business benefits.

Bridging the gap between business and technology, IPL provides Business Consulting, Technical Consulting, Solution Delivery and Managed Services to deliver innovative and dependable ICT solutions that address real business needs. IPL was founded in 1979 and is based in its wholly owned premises in the World Heritage City of Bath. IPL is an ISO9001 TickIT registered company with a permanent workforce of 260 & revenues of ca. £29 M p.a.

If you would rather not receive *IPL Telecasting* in future, please email your name and your company's name to [notelecasting@ipl.com](mailto:notelecasting@ipl.com).