

## Technical brief: real time Authentication, Authorization & Accounting

Founded in 1979, IPL has a long history of successfully delivering excellent consultancy and end-to-end software-intensive solutions to both the public and private sectors.

IPL's consultancy is renowned for its quality and value. Our consultants are talented and independent-minded individuals with extensive industry experience. We consistently exceed our clients' expectations through a combination of imaginative thinking, managerial and technical expertise and many years of systems engineering experience.

IPL's track record in end-to-end software solutions development is exceptional. Our proven development methods allow us to cut through technical complexity, manage risk and completely focus on delivery. We consistently deliver reliable, efficient and accurate systems to a precise schedule.

IPL is an ISO9001:2000/TickIT registered company having a permanent workforce of 240, revenues of ca. £21M p.a. and 40,000 sq ft of secure office space in central Bath.



### Security, speed, and big money

#### AAA

Authentication, Authorization and Accounting ("AAA") is the point at which the technology-oriented world of telecoms network design has to square up to some of the challenges of the commercial world. How can we make sure that only the right people get to use the network, or that users may only use the services that they pay for? How do we give the telco business the agility to invent new commercial deals, while making sure that every deal is enforced rigorously? AAA technology addresses these challenges, and IPL is widely recognized in the UK telecoms community as one of the strongest suppliers of AAA software services.

#### Authentication

Authentication is the business of enabling the network to verify the authenticity of a would-be service user, and of enabling the user to confirm the authenticity of a network. Terrorists and fraudsters are strongly motivated to breach telco network authentication systems, and they devote substantial resources to it around the world.

For example, there was a spectacular failure of authentication systems when GSM networks were first deployed: within months, the standard GSM Authentication and Key Agreement (AKA) system had been hacked, enabling the ill-disposed to

spoof network subscriptions and defraud both operators and other users. It was a difficult situation and it needed fixing quickly, but above all reliably. IPL was called in to quickly develop the real-time software to implement an alternative set of cryptoalgorithms for one of the affected UK operators. Since then, IPL has been trusted to develop a number of other cryptoalgorithm implementations, including the UMTS algorithm *Milenage*, for UK and global network operators.

#### Authorization

Authorization is the controlling of network use according to the privileges that the network operator has allocated to a given user. In a telecoms network, authorization has to be completed within a few milliseconds, often with cooperation from several networks, and for a base of several millions of users per network operator. IPL has built Home Location Registers (HLRs) and real time traffic authorization platforms for a number of telecoms network operators and equipment vendors. Telcos and equipment vendors choose IPL time and again for this type of work because of our depth of experience of engineering scalable, fast and resilient subscription databases, our breadth of appreciation of telecoms problems, signalling systems and technologies, and, above all, for the uncompromising reliability and performance of our software.



## Accounting

IPL has for many years led the UK's development of real time telecoms accounting software. The problem is not a simple one: look after the accounts of some millions of subscribers, for some dozens of different service deals, in real time, and with a demonstrable reliability and precision that's good enough not only for network service, but also for Sarbanes-Oxley and the Inland Revenue.

The complexity of some of the bundled deals that telcos need to offer, and the reliability requirements, can all too easily lead to software that runs correctly, but is too slow for real time traffic admission control. Indeed, it's not difficult to find telecom accounting packages that offer all sorts of features, and which run fast enough for monthly calculations on contract accounts, but nowhere near fast enough for real time management of prepaid accounts. It is testament to IPL's software engineering skills, experience in real time network control and consistent attention to design detail, that software developed by IPL handles the real time call accounting for over a half of the UK's prepaid mobile accounts.

## AAA protocols

Protocols for AAA signalling have come from both the internet and telecoms communities. IPL, as a telecoms software specialist with early involvement in using internet technologies for telecoms problems, has extensive experience of carrier-class implementations both of the internet AAA protocols RADIUS and Diameter, and of the corresponding elements of Signalling System Number 7, the GSM Mobile Application Part (MAP) and CAMEL.

## AAA needs secure, reliable and scalable software

It should be clear from the above that IPL has an exceptional track record in telecoms AAA software services. For more information about how IPL's engineering skills can help you in this challenging area, contact any of our Business Development Consultants.



Certificate Number FM 01589

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