



The 'Internet of Cakes'

Deploying IoT connected cake printers to supermarkets across the UK

A  robustel Success Story

About Intercake

Intercake was established in 2004 to develop a new cake printing system for all sizes of retail outlets. The company is based in Co. Wicklow, Ireland.

Intercake has a range of products available to suit any size business, from large grocery retailers to individual stores and has a presence in over 400 supermarkets across the UK and Ireland.

This innovative concept has produced unheralded commercial success as a bolt-on in the retail sector.

Intercake customers can have any custom graphic printed on the top of a cake for a small premium and have the luxury of being able to collect from one of several hundred stores across the UK and Ireland. The unique appeal and “fun” associated with this affordable luxury has clearly resonated with shoppers with an amazing 2.25 million cakes printed in the last 4 years.



Solution Topology

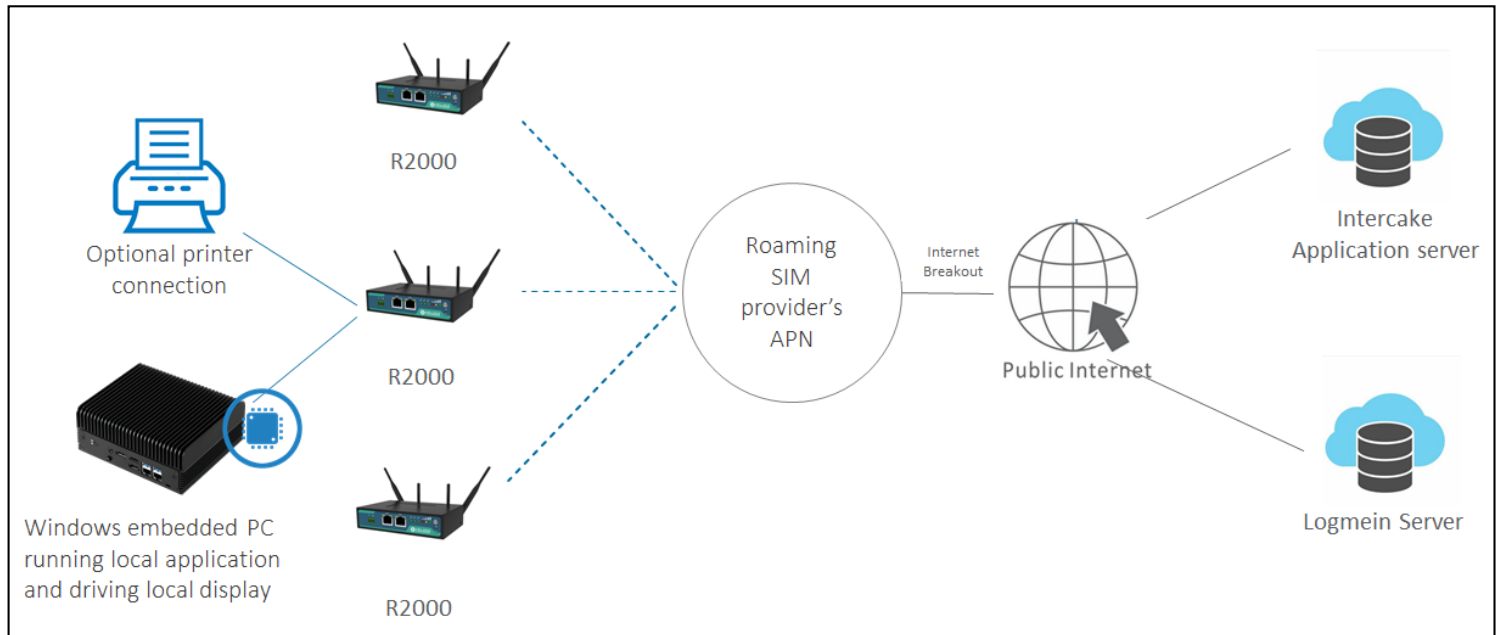


Figure 1.1 - Simplified Overview of Intercake Solution Architecture

Solution Overview

At the heart of Intercake's solution is a Windows Embedded PC responsible for managing customer interactions and driving the local display for simple and clear customer interaction.

The PC requires internet access for both application data and for the use of Logmein for ad-hoc remote maintenance.

Due to the Intercake kiosk positioning, generally in the aisle of a supermarket, internet access has not always been easy and it was on this premise that Intercake engaged with Robustel to provide an affordable and flexible cellular internet connectivity solution.

Picking the Perfect Product

Armed with a solution brief and a list of challenges, Robustel's IoT Solution Architect David Evans worked closely with the team at Intercake and found the **Robustel R2000** as the perfect product to offer reliability and flexibility, but cost-effective enough for a large scale national roll-out.

R2000 4G/LTE Router



- 4G/LTE router
- Dual SIM support for redundancy
- Wi-Fi Optional
- Cloud Device Management
- Fully programmable OS with an SDK
- Industrial temperature & EMC rating
- Global module version available
- Data-Guard v2 App provides enhanced functionality for Roaming SIMs

Business Challenge 1: Reliability of Cellular Connectivity

Intercake machines are generally located in the middle of supermarkets – a nice environment for humans, but potentially not such a nice RF environment for cellular devices trying to reach surrounding cell towers.

Metal clad buildings such as supermarkets can do a good job of attenuating radio waves at a variety of frequencies including those used for 3G/4G Communications.

Robustel provided guidance on the choice of a roaming SIM that could connect to all available networks in the vicinity, opting for an ‘unsteered’ roaming SIM that is optimised for best possible chance of a connection – not for the network operator’s commercial benefit as is generally the case with “steered” roaming SIMs.

Multi-network SIMs help significantly to increase overall estate uptime, especially when used in conjunction with Robustel’s “Smart Reboot” capability. “Smart Reboot” is a unique feature in all Robustel routers whereby a text message can be used to push a router from a non-functioning network to one that is fit for purpose.

The outcome of this good practice was very high estate uptime with only a couple of problem stores that could not initially connect due to lack of coverage from mobile network operators.

For more details on Robustel’s Data Guard V2 App visit:

www.robustel.com/app/data-guard-v2



Colm Nohilly
Managing Director, Intercake

"Intercake’s primary business is in providing a service to the retail sector in which a reliable, independent internet connection is now essential.

Robustel offered competitively priced hardware, excellent roaming SIM management and most importantly took the time to discuss appropriate architectures and configuration.

There are many layers to achieving a “fit for purpose” 4G solution and the Robustel team have been an invaluable partner to help us get it right first time.”

**Colm Nohilly, Managing Director
Intercake UK & EIRE**

Business Challenge 2: Qualifying Data Usage

Intercake traditionally used 'Logmein' as an occasional remote access solution and it had worked well.

However, the move to a 3G/4G solution meant that Intercake needed to be assured that excessive airtime bills would not be accrued as a consequence of using a bandwidth-hungry solution like Logmein.

With only anecdotal information about data usage from airtime bills during the test phase, it was considered risky to roll out a fleet of devices on 4G without more stringent qualification of per session data costs.

To solve this problem, analysis of a typical "logmein" session was completed using the "Sniffer" function contained within all Robustel 4G routers – in essence, all data over the 4G link was captured for subsequent analysis in the brilliant free network analyser package known as "Wireshark". The conclusion was that an idle Logmein session would accumulate approximately 20KB per second of data and active session approximately 40KB per second.

These fundamental measurements were invaluable in assuring the team at Intercake that the anticipated mode of operation would not pose an unacceptable commercial risk from a 4G data billing perspective.

The outcome of using this technique for getting a solid approximation of actual data usage was to save an additional proof of concept phase on a subset of sites to gather real-world measurements. Time to full deployment was quicker & risk was lower as a consequence.

For more details on Robustel's 'Sniffer' function visit:

<https://www.robustel.com/app/sniffer/>



"Working with Colm and his tech team at Intercake was an absolute pleasure. By taking a logical and iterative approach to the challenges of the project we were able to arrive at a very elegant technical solution and one that mitigated commercial risk of exceeding data-usage with smart use of the tools available within Robustel's products."

**David Evans, IoT Solution Architect
Robustel**

Business Challenge 3: Capital Expenditure for Connectivity

Due to the number of stores requiring internet connectivity, several hundred routers needed to be purchased. At this scale, the absolute cost of each router becomes a key consideration for the feasibility of such a roll-out.

Price/Performance ratio is critical in such an application as buying “cheap” can result in a disaster due to poorly written firmware or non-industrial build quality.

Conversely, the cost of an “over-engineered” solution can kill the business case upfront and 3G/4G connectivity – a key enabler of the Internet of Things – can be out of the reach of some projects.

The Robustel R2000 was able to hit an acceptable price-point to fit the business case as well as providing highly stable long-term communications.



About Robustel

Robustel are one of the world’s leading manufacturers of industrial quality solutions for the IoT and M2M market. Robustel’s portfolio of award-winning solutions are comprised of: Wireless Modems, Routers, Gateways, EDGE Computing, Cloud Software and End-to-End IoT solutions.

With a state of the art production facility in Guangzhou, high quality products and services make up Robustel’s corporate DNA. Maintaining an ISO9001:2015 Quality Management system and a sophisticated approach to quality control, planning, assurance and improvement has seen Robustel granted with numerous global certifications, including: CE, E-Mark, FCC, PTCRB, AT&T, Verizon, Anatel, IC, Rogers, GCF, TRA, RCM, iDA, NBTC, Postel, Sirim, CCC and Telec.

Today Robustel’s solutions can be found in every corner of the ‘Connected World’ providing IoT solutions to industries as varied as: Security, Vending, Retail, Utilities, Oil & Gas, Industrial Production & Automation, Transportation, Environmental Services and Healthcare.

To learn more about how Robustel can help your business save money and improve efficiency through IoT, please visit www.robustel.com or email info@robustel.com for more information