Moving to Common Use Self-Service (CUSS)

On the Cusp of CUSS

By John Howes, IBM Self-Service Solutions Manager

Today's travelling public wants to be in charge of the check-in process and they want to do it quickly. Above all else they do not want to queue – they have enough of that for security reasons. The airport wants to make much better use of the infrastructure they have got (building new terminals is a long term process) and they want happy passengers moving airside and buying in the retail outlets. The airlines want to cut the overall cost of the check-in process and they also want to offer a better service to their passengers.

Win, win, win – is it possible?

With the advent of self-service in the mid '90s it came to be a two-way win. The airlines provided their dedicated kiosks and passengers gained increasing familiarity in using them – to the extent that there are now a number of airlines who claim that over 50 % of their passengers are now using kiosks. But to make this a three-way spread, and really put self-service at centre stage, something else was needed. So, out of an initial International Air Transport Association (IATA) sponsored working party led by British Airways, Lufthansa, SAS and Swissair, the idea for CUSS was born.

The CUSS concept is simple – a kiosk platform to be shared by any number of check-in applications that conform to the CUSS standard. And this standard is very much alive. It was developed (and is enhanced) by a mix of airlines, airports and suppliers, is self-policing and, by and large, has worked very well. So this is where it becomes a three-way winner, with the airport much more likely to become the owner of the kiosk platform.

The CUSS Technical Requirement

There is obviously a lot of detail. But at the top level the main components are:

Just two of the 2.5 million passengers who have used the McCarran CUSS kiosks to-date

The CUSS Kiosk Platform

- Manages the devices like card readers, boarding pass printers and passport readers. The devices are interfaced via the IATA CUSS standard layer.
- Provides monitoring information on the hardware platform (this is called public information) and the airline business transactions (called private information). The information can then be sent to an external airport and/or airline monitoring tool to manage.
- Manages the CUSS applications that share the kiosk, launching them from a common screen and generally making sure they perform to CUSS standards.
- Ensures any CUSS certified platform runs any certified CUSS certified application.

The CUSS Kiosk Application

The airline self-service application lets the passenger check-in and prints the boarding pass. Many airlines will have developed their application so that they can run on their dedicated kiosks in 'single application' mode, and on CUSS kiosks in 'multiple application' mode. These airlines will also run CUSS on their proprietary kiosks, thus enabling them to maintain a single application.

The IATA CUSS standard applies to what is happening at the kiosk, not to the Departure Control System (DCS) interface or any back-end system interfaces. Thus it governs how the airline application interfaces with the kiosk platform and not how the application communicates with back-end servers and the airline DCS, the application look, or what services it offers to the passenger.

The IATA CUSS standard has been developed according to several principles, including operating system independence, although in practice, most vendors are delivering Windows 2000/XP solutions. There is also no specific hardware requirements assumed, although at a minimum the kiosk must be able to read cards and print boarding passes. The standard allows for vendor independence and applications written to the CUSS standard are platform independent. The interface between the CUSS applications and the platform components is based on CORBA. Standard CORBA IIOP is used for

all ORB communication between the CUSS platform and any CUSS application and or CUSS system manager.

The CUSS Kiosk Platform Provider

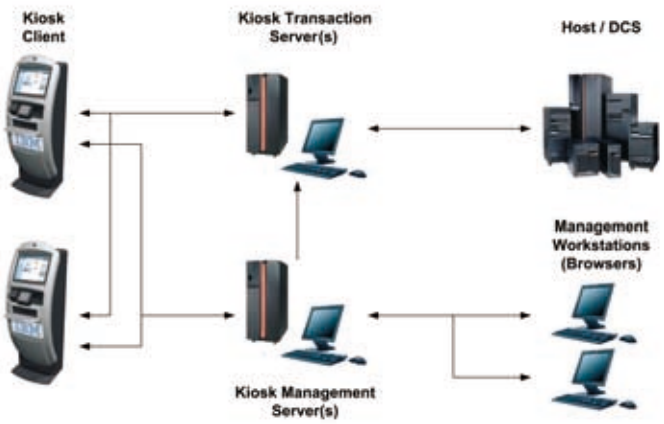
To make it all work at the airport, typically the CUSS Kiosk Platform provider (Airport) provides

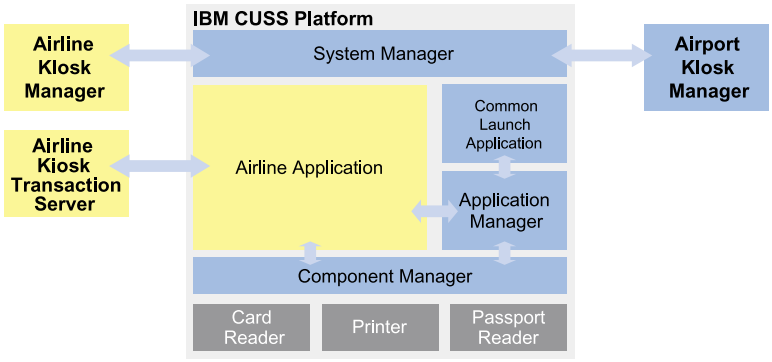
- The kiosk hardware platform consisting of the kiosk and the CUSS middleware.
- A Common Launch Application (also part of CUSS), which provides a launch screen that defines which airlines share the CUSS platform. The Common Launch Application provides an interface for the end-user passenger to select the airline with which they are travelling and would like to check-in with.
- A monitoring tool – such as IBM Kiosk Manager.

The airlines each bring their CUSS self-service application to the airport and install them on the airport CUSS kiosks.

To illustrate how this all works in practise I will use as an example the IBM CUSS platform implementation:

The IBM self-service solution is based on a multi-tier architecture that IBM has used successfully for many self-service projects. This architecture comprises reusable components that allow rapid development of applications, provide the flexibility to support a wide range of devices and communicate with different host systems.





The multi-tiered architecture is comprised of the kiosk client, the kiosk transaction server, the kiosk management server and the airline Departure Control System (DCS).

Most providers of CUSS solutions are likely to have a business logic tier between the kiosk client and the DCS and other systems. The transaction server provides communications between the DCS host and a number of kiosks; it is also likely to carry the business logic decisions. Some providers will also offer a dedicated kiosk monitoring service at this level, such as IBM Kiosk Manager. This will let you monitor and manage both the kiosk hardware and the CUSS applications, providing the appropriate information, access and control to airlines (for their own application) and airport (for kiosk hardware, software updates and overall transaction data).

The kiosk application provides the end-user functionality that the kiosk offers to the passenger, typically the airline check-in. The CUSS client applications (see diagram above) are managed within an environment that is provided by the CUSS platform. The kiosk client application architecture could be rich client, thin client or a very thin client. The thinner the client, the more of the application resides and runs on a kiosk transaction server.

Only one CUSS application is active and displayed at a time. Only the active application is allowed to access the kiosk's device components; this access is managed via the CUSS interfaces by the CUSS platform. During idle times, while no other CUSS application is running, the Common Launch Application is activated by the CUSS application manager (see above).

It is the kiosk client where the implementation conforms to the IATA CUSS standard.

There are three defined platform interfaces, the Component Manager, the Application Manager and System Manager.

Component Manager. The kiosk application is not allowed to access the hardware devices directly. To realise this, the CUSS standard introduces a hardware abstraction layer that hides the proprietary device interfaces from the kiosk application. The kiosk application accesses the hardware devices through the device component interfaces of the platform.

Application Manager. The application manager is responsible for controlling and scheduling the kiosk applications which are registered on a specific kiosk. Applications decide whether or not to become available (selectable on the Common Launch screen) or not available (not selectable on the Common Launch screen), and tell the application manager accordingly. The application manager also polices the applications and makes sure that they are not misbehaving!

System Manager. The system manager interface allows for remote management of the kiosk. It is a standard CORBA interface implemented on the kiosk, allowing for remote connection from authorized system managers. Functionality includes:

- Reporting errors, alerts and alarms encountered by device components.

- Reporting of platform events such as application state changes, application events, etc.
- Gathering statistical information (Some of this is for the kiosk owner, some for the application owner).
- Remote control of the application – load/stop/suspend/resume.

The system manager interface provides the ability to control and monitor the platform. It has interfaces with the device components and the application manager functions in the platform. Each device component reports its error conditions to the event dispatcher. The event dispatcher forwards events to the system management interface.

So much for the theory, the BIG question is what is happening in practice with self-service and with CUSS. Let's look at a couple of different situations.

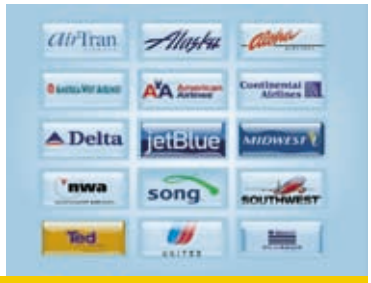
The take-up of self-service by the passengers of Aer Lingus at Dublin Airport has been nothing short of dramatic. At the start of 2004 Aer Lingus had no kiosks installed – in fact, they were still in the project development phase with IBM. The first kiosks were installed by Easter 2004. By the end of that summer self-service usage was registered at over 50 %. Aer Lingus has now spread their kiosk network to other locations. Jim Rogers, Aer Lingus Duty Manager and Manager FastPass, reports "Self Service Check-In is now a mission critical system for Aer Lingus in Dublin. In the period June-November 2005 in excess of 60 % of all departing passengers used a kiosk. Customer reaction has been extremely positive. Our passengers have been empowered to do their own seating, check-in for onwards flights and even APIS edits on our kiosks. We have recently upgraded our application to handle large groups so we expect the take-up trend to continue to increase to well beyond 70 % of all departing passengers."

If you want to attract, you've got to interact

Las Vegas McCarran International Airport is the best known implementer of CUSS. Today there are over 80 CUSS kiosks installed with 15 airline logos sharing the Common Launch Screen. As well as the airport, kiosks are also installed in the Las Vegas Convention Centre and are soon to be installed in local Las Vegas hotels for use by airline passengers. Samuel Ingalls, Assistant Director of Aviation, Information Systems at McCarran reports "The kiosks have allowed us to greatly enhance passenger processing efficiency, taking the check-in process outside of traditional bounds to various terminal locations and even off-airport. The result has proved to be a clear triple win, for the airport, the airlines, and most importantly, for the passengers."

Airports in Europe that have embraced CUSS kiosks include Schiphol, Vienna, Copenhagen, Manchester and London Heathrow Airports.

Major hotel chains are also now turning to self-service and CUSS. Hilton Hotels Corporation has a program for self-service, implementing a solution developed with IBM and written to the CUSS standard. One interesting example is the deployment at the Hilton Hawaiian Village resort, one of Hilton's largest hotels. Hilton's research discovered that, just like in an airport, their guests do not want to queue for check-in. Last year Hawaiian Village began to offer self-service check-in kiosks. Guests get their hotel keys in the check-in process. They can even check-in at hotel kiosks installed at Honolulu International Airport whilst waiting to collect their bags. Embassy Suites, part of the Hilton family of brands, is also implementing self-service in every hotel by Summer of 2006. They are implementing a lower cost, desktop kiosk, installed on a podium. The Hilton brand kiosk is free-standing. Both of these Hilton kiosks are built around the IBM Anyplace Kiosk; the Embassy Suites desktop kiosk is shown here.



The Common Launch screen of the McCarron Airport CUSS kiosk

Despite all these success stories there is still plenty to go at. IATA reports that there were 73 million self-service kiosk check-ins world wide in 2004. But two billion people actually flew (so this still only represents 4 % of the total). The opportunity for self-service is seen as 40 % of that total figure (i.e. 800 million passengers) – so there is still a lot to be done.

As Paul Behan, IATA CUSS Project Manager states: "2005 has been a year of IATA leading CUSS projects with airports on behalf of our airline members to make CUSS a reality. 2006 shall see a year of project delivery and so establish CUSS infrastructure to allow all stakeholders to optimise the advantages CUSS has to offer."

Self-service check-in is now mature for air travel; the leading airlines have been offering the capability to passengers for over 10 years. Self-service offers a natural extension to e-ticket. No more worrying about paper; just go to the kiosk, identify yourself and print out your boarding pass. And there is another big change coming in Europe. The movement away from expensive magnetically encoded ATB-2 boarding passes to bar coded boarding passes (which is what you would probably be printing for web based check-in). So CUSS and self-service become a natural enabler for other technologies that offer significant savings in the travel industry.

Not started yet? It is not too late, you can still start today, just like Aer Lingus, and achieve dramatic results. The process of CUSS is well understood and is being increasingly embraced in Europe and North America. It has been the product of a great deal of collaboration between airlines, airports and suppliers.

The Hilton Embassy Suites ergonomic desktop kiosk

Those involved in the project also compete against each other on a commercial basis. That aside they have each felt it well worthwhile to contribute to the success of the standard as yet another win-win-win!

And finally the hotels are saying to the air travel industry 'thank you for training our guests … we are now coming to embrace CUSS and self-service'. Substantial numbers of kiosks are now being deployed in North America with applications adopting the CUSS standard. Soon you may be able to checkout of the hotel and at the same kiosk check-in to obtain your airline boarding pass.

Those of us who have been involved with the CUSS standard for airlines and airports can go forward confident that this standard can be embraced by other industries where there is a public facing kiosk and the potential for a shared kiosk hardware resource.

There are challenges ahead. The installation of any self-service solution means that the current processes have to be replaced. Decisions have to be taken on a number of topics, such as baggage handling, that are crucial to the support of the kiosk; concerns about brand recognition, how the CUSS kiosk is paid for and CUSS application delivery must all be addressed. But the size of the opportunities on offer means that it is all well worth the effort.

For more information please tick reader enquiry card no 153 or log on to www.kioskeurope.com