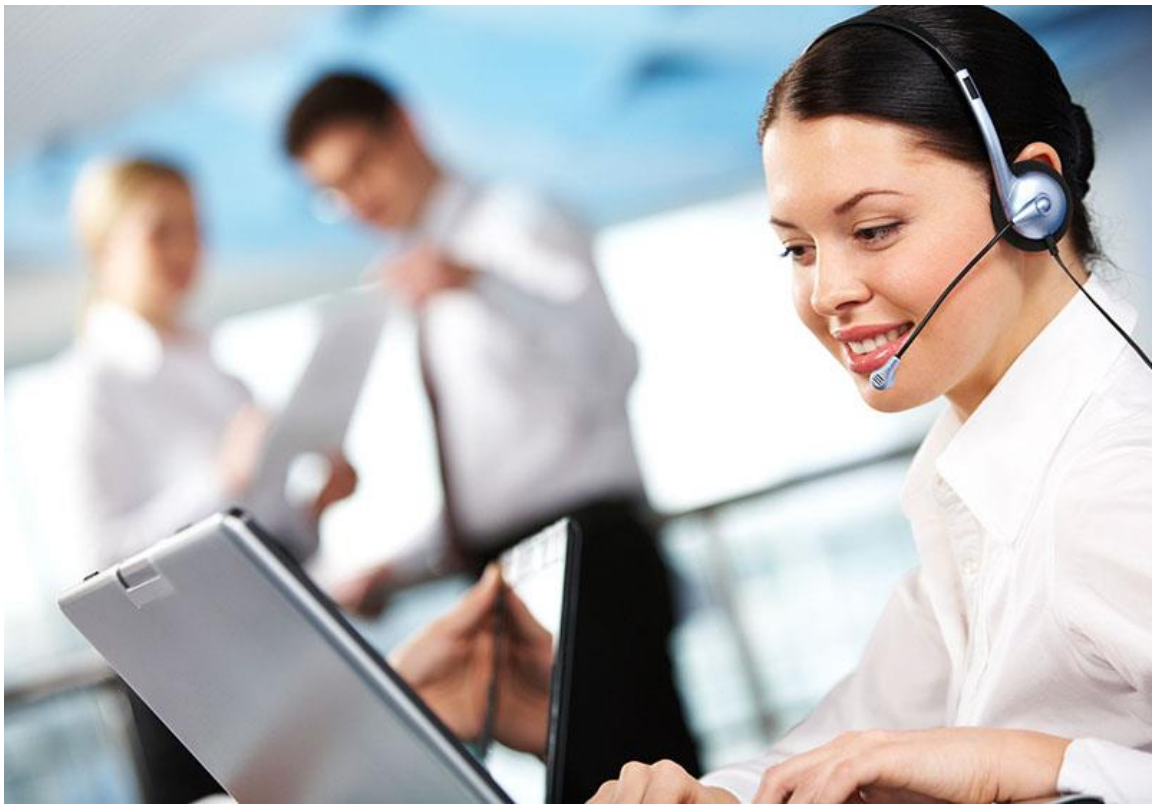
FUJITSU

White Paper

End User Computing for Local Government



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1 Introduction

Local government is undergoing a revolution, where more services are being provided to more people, in more locations, every day. Increasingly, smaller councils are looking to combine forces and collaborate with one another to reduce duplication, reduce costs and provide new and improved services to their communities. The future of local government will see the adoption of more cloud based and commoditised IT services, allowing councils to focus on delivering community value, rather than buying and running IT systems. This change is being realised in technology, with a shift in focus from the management of devices and desktops, to the provision of applications that can be accessed from anywhere on any device.

Traditionally, the technology industry (including internal IT departments) has counted and managed desktops. A city council may have 3,000 computers and therefore, the focus has been on how to distribute applications to those desktops. However, the real goal now isn't how to put applications on 3,000 desktops, the goal is how to get the applications and information to staff, contractors and external partners so they can access them where, how and when they want, safely and securely.

Fujitsu's global vision is focused on a concept we call the "Human Centric Intelligent Society." This aligns with the future of local government as it places the human (end user) at the centre of the picture, a concept which seems obvious, but until now the technology industry has placed the device at the centre of its focus.

This is all about to change.

1.1 The Tipping Point: Desktop as a Service

The advent of Desktop-as-a-Service offerings in the market provides the opportunity to review how applications and information can be delivered to end users, freeing us from a device based world, to a world in which applications and information become the focus.

Whilst not all Desktop-as-a-Service (DaaS) services are equal, they do have key elements in common:

- A platform that allows application delivery to be scaled according to demand;
- Options for desktop and/or application delivery; understanding that a 'one size fits all' approach is no longer required nor appropriate;
- Delivered 'as-a-service' meaning customers only pay for what they consume without the cost of owning and managing the delivery platform; and
- A flexible and deterministic operational expenditure (OpEx) based consumption model.

Comprehensive DaaS providers go even further delivering:

- Self-service, often including full automation, to reduce operational overhead;
- The ability to manage both traditional and virtual desktops with a seamless roaming experience;
- A platform that offers users multiple operating system versions to best meet the device and application being used at any given point in time;
- Integrated and connected services delivering end-to-end managed desktop services; and
- Options for availability and disaster recovery.

Local government is a key sector where a comprehensive, managed DaaS solution can add real value, through enabling the revolution in local government, and providing significant efficiencies to optimise today's local government model.

With a range of user types each with differing demands and requirements for access, mobility, connectivity and even devices, a comprehensive DaaS solution can drive real benefits. This whitepaper describes how such a service could be used to achieve significant business outcomes including, reduced operational costs, increased productivity, and improved end user experience.

1.2 Fujitsu's Solution

Fujitsu's DaaS offering (Government DaaS or GoDaaS) is a complete application and desktop solution. It provides an entire range of services typical of an end user computing environment including published applications, virtual and traditional desktops, application packaging, device procurement and full support.

GoDaaS also includes a fully automated self-service portal to help increase productivity and reduce manual administrative effort and cost.

GoDaaS has been developed as an "as a Service" model; enabling services to be scaled to meet a customer's changing needs without locking in unnecessary capital expense. The platform is "evergreen", meaning that virtual desktop operating systems are continuously updated and ensuring that the latest desktop operating systems as well as tools and services are available for uptake as required. This flexible and scalable model allows services to be selected that work best to meet business requirements as well as providing options for the future.

1.3 Benefits for Local Government

Local government has a range of end user types. With a flexible DaaS platform the requirements for how users access their data and applications can be aligned to the options that best suit their working style. For example:

- Contractors and alliance partners such as transport authorities, quarry operators and environment agencies, can use published applications and/or virtual desktops from their own devices (BYOD) or devices provided by councils at a nominal cost.
- Roaming and remote staff can use traditional and virtual desktops to enable users to work from any location such as libraries and sports facilities, and for travelling staff such as animal control officers with a consistent user experience wherever they happen to be.
- Administrative staff providing central council functions such as building consents and managing historical property records can make use of low cost shared desktops or thin client devices to help reduce cost.
- Dedicated virtual desktops support demanding workloads that require high compute and graphics capability, such as GIS mapping applications used by building and surveying departments.

Use of a platform such as GoDaaS allows local government to broaden and diversify the range of service options available to their end users potentially without increasing operational costs - in fact the reverse may be true as Fujitsu is accountable for ensuring the platform is available, secure and resilient. This helps reduce the need for IT staff to be involved in the day to day operations of the desktop environment, freeing up valuable resource to focus on delivery of business projects.

This whitepaper explores three potential drivers for change that may benefit local government:

1. Enhanced council services;
2. Improved customer experience; and
3. Cost savings.

2 Enhanced Council Services

Local Government is unique in that it provides a highly diverse and wide array of businesses and services for the communities they serve, along with many external alliances and relationships with external providers. In addition to the staple services provided by councils such as water and waste management, building compliance, and road maintenance, there are many temporary services that require the ability to rapidly scale up and down. Event management for example, requires significant resources for a short period of time and must be able to be provisioned and de-provisioned quickly, efficiently and cost effectively. Longer term projects such as roading developments and construction ventures require the ability to scale up services for an extended period of time and then scale down on completion.

Using GoDaaS presents the opportunity for local government to easily meet the rapidly changing demands of its businesses, expanding the services it provides and reach the wider community through the use of new technology. Below are some key examples of how this can be achieved.

2.1 Remote Coverage

Local government is unique and notable for the wide range of services it provides to communities from very diverse locations such as swimming pools, libraries, nurseries and world class gardens, museums, sporting complexes, and animal control facilities to name but a few. The challenge for councils is how to provide IT services to what are often remote locations with a handful of staff and limited network connectivity. It is frequently unfeasible, or expensive and problematic to provide access to full application and desktop services for these users and managing traditional desktops at remote locations using traditional methods can be difficult. Many council employees are frequently working out in the community away from office locations such as animal control officers, and building inspectors, who don't have access to the systems and information they need without returning to base. This often results in duplication of effort where paper based information is transcribed into IT systems, activities which could have otherwise been achieved in the field in real-time.

GoDaaS is a centralised end user computing model, built on Citrix technology, designed from the ground up, to perform over constrained low bandwidth and high latency network connections. This is ideal for remote locations with limited network options such as ADSL links. Secure internet based remote access is a native feature of GoDaaS and permits staff in locations without corporate network access to use council applications and resources. Building inspectors and animal control officers are able to use portable tablet devices in the field to directly access council applications and data using GoDaaS remote access and avoid the need to return to base.

As all compute power is contained within the GoDaaS data centres, full desktop deployments in remote and corporate office locations can be replaced by cost effective, easily managed thin client or Chromebook-type solutions that eliminate the need to manage desktops and applications on site and reduces the amount of data 'in the wild' and the consequential risk of data loss. Thin client or Chromebook type devices are recommended for two reasons, (1) they do not require additional OS licences and (2) the cost of the device makes it more suitable for management as a consumable rather than an asset with warranty and maintenance costs. Both of these factors also allow the device to be quickly swapped out in the event of failure, helping increase productivity.

In addition to general purpose virtual desktops, there may be specialist requirements such as interactive GIS mapping systems, that require high end Windows based workstations, or high-end Macs.

It is possible to successfully virtualise high end workstations and deliver an equivalent level of performance using a virtual desktop. This is achieved by equipping a pool of virtual desktops within GoDaaS with high-end GPUs, which combined with the Citrix HDX protocol, enabling hi-resolution displays to be delivered to a wider range of end users at almost any location with a network connection.

2.2 Events on Demand

Councils are frequently involved with promoting large scale events and event management such as exhibitions, shows and community fairs, and are commonly involved with longer term projects in areas such as roading or construction. On demand scalability is a another key feature of GoDaaS that allows councils to quickly and proactively support temporary short and longer term requirements without the long term investment and sunk CapEx typically required.

Events can be quickly equipped with low cost devices such as thin clients or Chromebooks to access virtual desktops and applications from any location they happen to be at, such as sports stadiums and event centres. A Chromebook would incur a cost of under $400 per device, and yet provide a very useable and suitable experience for event staff. The setup time would be no more than provisioning each user with a device at the start of an event, and collecting them again at the end, or alternatively staff could bring their own devices.

The concurrent usage licensing and consumption based pricing model of GoDaaS means that it is ideally suited for meeting short term demand. Councils need only pay for the total number of simultaneous virtual desktops being used for the time that they need them. For example, a one month event with a total of 180 staff but only 60 concurrent users, means that councils would only pay for one month's usage for 60 staff. Councils no longer have to invest CapEx in a fleet of full desktops, that may or may not be used, but are retained on the books for several years as depreciating assets.

2.3 Local Area Shared Services

Coalition of councils within local geographic areas provides opportunities for local government organisations to share common resources, reduce overlapping capabilities, specialise in delivering specific services, and ultimately provide new and improved services at lower cost. IT services are no exception with many IT functions and costs being duplicated between councils including deployment and management of desktops and access to applications, information and resources for staff and contractors.

GoDaaS is a virtual workplace that provides standardised and commoditised ICT infrastructure services that can be easily deployed to enable local area shared services and allow councils to collaborate more effectively, and support shared IT services without diluting the unique identity of each council. Local area shared services can be as simple or as comprehensive as the collaborating councils wish. GoDaaS supports each council's unique applications and backend systems through a common desktop management platform so that they can continue to provide services to the community. GoDaaS provides the platform to support transition and consolidation of services over time, and support sharing of information and resources between councils. Councils can operate as independently or as closely with one another as they wish, while benefitting from the potential cost efficiencies that come from sharing a common standardised virtual workplace.

Councils can reduce the overhead and cost of running and operating non-core business functions and reinvest and focus on providing the right services at the right cost to their communities that are more agile and flexible,

Fujitsu's strength comes from our global experience with government and local government organisations and expertise in establishing shared service organisations and helping realise benefits for councils from Australia through to Canada to the UK.

2.4 Working through a Disaster

Disaster recovery, and the ability to continue functioning in the face of unprecedented disaster such as earthquakes, tsunami, or 'dirty building' events where work premises are compromised for some reason, is a risk many councils are faced with. The expense of providing DR capability which may never be used is often viewed as 'dead' money, and money that is better invested in providing core business services. Paradoxically, local councils are one of the key bodies that must be available during a disaster to work with emergency services and Civil Defence to restore services as quickly as possible.

GoDaaS virtual workplace is just that, a virtual workplace, built across two geographically isolated data centres with built-in disaster recovery capability and full remote access features to provide ongoing availability of virtual desktops and applications from anywhere at any time. For example if council buildings are deemed unsafe following an earthquake users' desktops and applications will continue to be available remotely from the GoDaaS data centres allowing councils to continue functioning in a way that is traditionally difficult, and costly to achieve. If a GoDaaS data centre fails, users can continue to work from the alternate GoDaaS data centre with minimal interruption.

Of course virtual desktops and applications are nothing without data and information. Councils can take advantage of the data centres that host GoDaaS to provide a remote facility for replication of business critical data. GoDaaS also supports a number of network connection types including OneGovt, which means that councils can potentially locate their data at any OneGovt connected location and have it available via GoDaaS.

GoDaas is a key enabler for local government to pursue disaster recovery and business continuity planning initiatives while limiting the need for large scale investment to prepare for something that may never happen.

2.5 Benefits of GoDaaS

All of the benefits described above can be achieved by delivering end user services through GoDaaS virtual workplace to provide virtual desktops and applications consistently and reliably. Staff receive identical applications, data and environment (i.e. combination of apps, data, IDEs, databases, etc.) as they would in a physical desktop environment, and they can do this from any location. The only device requirements are a suitable combination of screen-size, keyboard and mouse, and a device capable of running Citrix Receiver. This provides councils the opportunity to offer a range of devices such as BYOD, thin clients, low cost devices such as Chromebooks - or any combination thereof.

In addition, Fujitsu are working to integrate cloud offerings such as Skype for Business with GoDaaS which can then introduce concepts such as virtual classrooms without councils needing to develop integration and support skills.

In summary, the solutions afforded through the use of GoDaaS to deliver additional, more flexible virtual workplaces can lower the cost of delivery with a simple, scalable, transparent pay-per-unit commercial model and allow local government to focus on core business functions for the communities they serve.

3 Improved Customer Experience

Local government often use decentralised models with the unintended consequence of user data and information, sometimes business critical, being stored on the desktop PC, and often leaving the user to make decisions about where to store their files. Applications are deployed to the device in a traditional fat client model, and users often have local administrator rights allowing them to install software themselves.

This desktop management model provides a high degree of user freedom and sense of autonomy over their desktop however is considered an expensive model to manage - particularly if the end-user demands support for any element they have self-installed. Some of the key challenges with a decentralised model are as follows:

- Risks of data loss due to local storage of files on devices - if a device fails or a file is deleted there is no centralised backup and restore system to recover from.
- Chained to a specific device - as a user's files, settings and applications are all located on a specific device the user is unable to work with any degree of success on any other device. This may not appear to be a problem if staff are predominantly desk bound and have no need to use other devices, however does limit the ability to collaborate or work from anywhere without taking their device with them (increasing risk of damage or loss). This may impact any future innovation on resource management and mobility models an institute wishes to deploy.
- "Wipe and rebuild" support model - the only cost-effective way to provide support of a decentralised, locally administered PC is to wipe the device and rebuild it back to a default state. This leaves the issue of reinstalling all of applications, data (assuming the data was backed up) and reconfiguration of personalisation. VIP users (and often wider groups) expect this to be provided by IT which can be very expensive as it requires a lengthy desk side visit. Alternately, it has a productivity cost if the user has to do this themselves - typically also resulting in a level of frustration degrading any end user satisfaction model reporting.
- Lack of remote access - the users have no access to their files or applications unless they have access to their device, therefore working away means lugging laptops and related peripherals around, even if it is just to work at home.

While the decentralised model may seem preferable to users under normal circumstances, the limitations above will eventually become evident and may well lead to user dissatisfaction. Our experience has found that as long as local storage is available and file redirection isn't in place, users will default to saving files into the local My Documents folders, leaving Councils exposed to a loss of data.

The industry best practice for desktop environments is to have no volatile or business data stored on the device, wherever possible limit local deployment of applications, and restrict local administrator access to IT support personnel.

3.1 Benefits of a Standardised and Centralised Desktop Environment

Moving to a centralised managed desktop model as provided by GoDaaS, allows for the following potential benefits to to help provide an improved customer experience:

- Instant application provisioning - using the GoDaaS self-service portal users could self-provision a range of applications and/or virtual desktops and have them available almost immediately (subject to approval workflows).
- Fully backed up data storage - using either the council's own storage system or cloud storage such as Microsoft's OneDrive (or a combination of the two), all user data is stored centrally and backed up.
- Mobility - users would no longer be tied to a specific device, they would have full access to their data and applications from any device. This would apply to both traditional PC devices and virtual desktops. GoDaaS also provides full remote access so that users can work from anywhere.
- User centric support - using the ability of GoDaaS to roll back individual application settings to a last known working condition, the requirement to reset user profiles would be largely eliminated. Even in the catastrophic event that a device did need to be fully rebuilt a user could simply work from any other device with no loss of data or applications whilst it was being done.
- Off-line file sync – GoDaaS includes an optional file synchronisation service (OLS) for offline users. OLS ensures that on-line files are available off-line and are then automatically and appropriately synced to the latest version when back on-line. This is particularly useful for roaming users who can continue to be productive without network connectivity and is available on a wide range of GoDaaS and non-GoDaaS traditional physical devices such as laptops and tablets.

So while some users may initially feel that the loss of local administrative rights to their desktop is a negative, the benefits that can be gained from a centralised managed model and the ability to logon from any device from any location at any time quickly outweighs the emotional attachment to local administrative rights.

4 Cost Savings

There are several ways in which GoDaaS could reduce costs for managed desktop services, however cost savings are not the primary driver for organisations considering a managed desktop service. Depending upon the current investment and service levels, it may be that a managed desktop service incurs a neutral or slightly increased cost from an in-house decentralised model, but equally can afford opportunities to help increase revenue.

The areas in which GoDaaS could be used to reduce or minimise costs and/or increase productivity time include:

- Rationalised capital investment.
- Reduction in support costs.
- Managing the full desktop TCO model.
- Reduction in software licensing.

4.1 Shift Capital investment to a Pay as You Go model

Use of GoDaaS provides an opportunity to move capital expenditure (CapEx) into an "as a service" OpEx (operational expenditure) model. This isn't simply about switching from CapEx to OpEx, as this can be achieved through leasing and financing, it is about moving from a fixed upfront investment to a flexible "pay as you go" consumption based model.

Under a CapEx model, an upfront investment is made based on a defined capacity of users. As the actual number of users changes, the CapEx investment will either be too low, in which case the council will be missing out on potential revenue, or too high in which case the use of CapEx will be stranded and not providing the return on investment (ROI) that was expected. This is particularly relevant for the high-end workstations used for graphics intensive workloads, such as 3D modelling, and interactive GIS mapping, as they are both a significant CapEx investment and a finite capacity resource that determines the maximum number of users at any given time.

Under an "as a Service" model there are two ways to address this; the first is to rent the hardware on a monthly basis, allowing capacity to be flexed up and down as demand changes. The second is to shift from purchasing expensive high-end workstations to low cost, multi-purpose thin-client devices, reducing the amount of CapEx required, and enabling the council to purchase surplus capacity for peak times with a minimal amount of CapEx.

These two options can be combined, and can even be blended with the traditional CapEx and high-end workstation approach. For example, if the council already has a desktop fleet, at least a third of which will be current, and a third will be due for replacement (based on a 3-year refresh cycle) the devices due for replacement could be replaced with thin-clients. 70% might be purchased outright (as this will usually be the most cost effective means of buying an asset for long term use), 20% could be leased on a 12-month period, and 10% rented month to month. This model can be compared to the use of a blended portfolio of fixed and variable mortgages to gain reduced interest rates while allowing flexibility in repayment.

4.2 Reduce Support Costs

The cost of supporting a decentralised desktop often appears to be minimal but the *real* cost is commonly unquantified, and unknown particularly in relation to business impact and lost productivity. Many desktop related problems are dealt with by wiping and rebuilding end-point devices and erasing users' identities and personlisation through profile resets, which in turn generate a range of follow up issues to be resolved. When a mass change is required, such as an OS upgrade (e.g. from Windows 7 to 8.1 or 10), the cost can be far higher than a centralised model due to the need to manage every device individually.

In addition, as noted in the 'wipe and rebuild' support model, a decentralised model is often very expensive to run if the end user expectation is still that all fault resolution is responsibility of IT, regardless of whether IT installed or approved the change. Such incidents can often take considerable time and effort to resolve, as well as time required with the client to establish the chain of actions which caused the incident. Scheduling and re-scheduling time can cause significant frustration and loss of productivity for both parties.

GoDaaS helps reduce both issues by using a remote management solution that allows for desktops to be regularly patched as well as remotely controlled for resolving issues on-line with the end-user. Where possible, this will be the first point of action for Fujitsu's GoDaaS service desk. If a desktop does need to be rebuilt, the native separation of data and users' personalisation and identity from the desktop provided by GoDaaS also assists with rebuild activities by permitting targeted fault resolution that reduces support costs and improves end user productivity.

4.3 Desktop TCO Model

When comparing the cost of a virtual desktop with a managed traditional desktop, one cost may seem higher than the other. However, to really understand the cost of each desktop type, the total cost of the desktop must be considered. This can include:

- Use of concurrent virtual desktops - instead of paying for a desktop per user, councils can pay for a pool of virtual desktops which are then consumed as people require a desktop but are not counted when they do not. We have seen a drop of up to 50% in desktop fleets when using concurrent virtual desktops rather than the one-to-one requirement for traditional or dedicated virtual desktops.
- Choice of hardware with thin clients and lower end laptop/tablets such as Chromebooks and iPads not requiring expensive OS licences to run makes the cost of devices to run virtual desktops cheaper than traditional desktop devices. This then balances the perceived higher cost of virtual desktops.
- Selecting low-cost hardware can also reduce hardware support costs with devices becoming 'consumables' i.e. they are swapped out by courier and the user and then repaired only if cost effective, with the cost of additional spares often being cheaper than warranty and maintenance costs.
- Standardisation of desktops and application installation controls reduce support calls and prevent additional downtime for the end-user. Virtual desktops, due to their centralised and standardised nature, are much easier and quicker to troubleshoot and resolve associated issues compared to traditional desktops - again leading to better productivity for end users as well as reduced support costs.

It is evaluating and understanding all these factors that can provide a balanced view of true total cost of ownership of desktops, and where the best cost efficiencies can be made.

4.4 Reduce Software Licensing

While some applications are covered by enterprise or government licences that allow unlimited deployment within an environment, many applications are still licensed on a per device basis. In a traditional desktop PC model, the applications are installed on the device when the user requests it, but very rarely are they removed or de-licensed when the user no longer needs it, or when the device is moved to a different user. This lack of license tracking and software harvesting often leaves organisations exposed to a license deficit, or carrying far more licences than they are actually using.

Local government may benefit from the use of published applications to reduce software licence wastage. By delivering applications virtually as published applications, there is no software installed on the device, therefore no risk of software wastage or unexpected compliance costs through uncontrolled use.

4.5 Cost Modelling Scenarios

Four cost scenarios are proposed to enable a comparison of GoDaaS operational costs to the traditional CapEx/project investment. These scenarios are:

- Refresh desktop fleets. Compare the TCO of continually refreshing and managing desktop computers versus delivery of the same applications and information using virtual desktops from cost effective thin client and low cost devices.
- Refresh high-end workstations. Compare the TCO of refreshing static high end workstations in fixed locations to high end virtual workplaces available to more users in more locations.
- Refresh of council owned desktops. Compare the TCO of refreshing a group of council owned PCs with virtual desktops delivered via new thin-clients, or converting the aging desktops into thin-client devices.
- OS or Applications upgrade across large number of desktops. Compare the TCO of a project to upgrade the OS from Windows 7 to Windows 10 across 100 devices in a traditional decentralised model, versus a virtualised desktop model.

Next steps

If you would like to discuss GoDaaS in more detail, arrange a face to face meeting or see a demonstration of the solution, please contact Tristan Faint, Fujitsu New Zealand Business Development Manager on the following:

Email – Tristan.faint@nz.fujitsu.com

Mobile – 021 193 4894

Landline – (04) 460 2433