New Zealand Schools Cloud Transformation Project

System Integrator Playbook
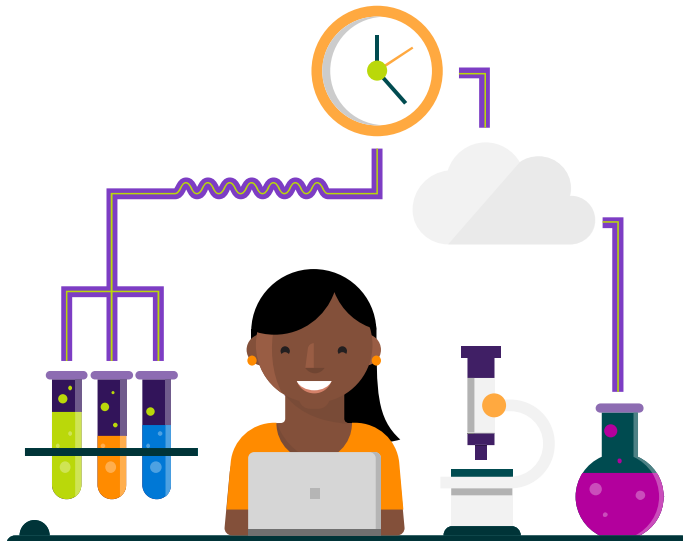
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About this playbook

Achieving strategic education outcomes such as adhering to the Education Digital Strategy and benefiting from 21st Century (21C) teaching and learning requires a fundamental shift in how technology in schools is managed and used.

While many schools are already undertaking the move to cloud-based services, schools typically make their own decisions around how cloud technology is deployed and consumed.

This ad-hoc process of moving to the cloud results in unequal outcomes across the sector. Some schools have access to the funding and expertise to implement cloud technology to drive improvements to teaching and learning, while others lack the ability (either to implement the technology or build upon this foundation in a way that lifts education achievement).Inequality makes it hard to deliver the benefits of 21st Century Learning.

The Ministry of Education sees an opportunity to increase the teaching, learning, social, and economic benefits associated with the use of cloud technology by making the deployment of cloud services consistent across schools. Support will be provided through unified, skilled system integrators working with school directly. They will uplift the quality and security of cloud transformation through use of this Playbook. This Playbook gives repeatable advice – through these system integrators – that supports a school's ability to make decisions on future technology investment. This uplift in the maturity of cloud services' deployment and consumption will provide the foundation for 21st Century Learning – and teaching.

Purpose of this document

This document maps the steps recommended for a successful migration of a school to cloud services. This document is the roadmap which System Integrators (SIs) are expected to follow as they engage with the school to guide their process of discovery, definition, deployment and possibly subsequently maintenance of the school's cloud infrastructure and services. Following the roadmap is integral to the goal of achieving a homogenized maintainable, secure, available, performant infrastructure and service topology that delivers consistent benefits across all schools moving to the cloud.

An SI following this playbook should find described the tasks required to migrate a school to the cloud, with each task addressed to an appropriate level of detail. It will help them become trusted participant's of a school's digital journey for 21st Century Learning. The playbook maps out both the automated discovery and deployment activities (e.g. supported by tools such as START) and non-automated activities required for a successful migration.

Approach

The playbook contains a number of key phases that address specific stages of a school's cloud migration journey.

System Integrator

- Envision
- Plan
- Build/ Stabilise
- Deploy
- Maintain
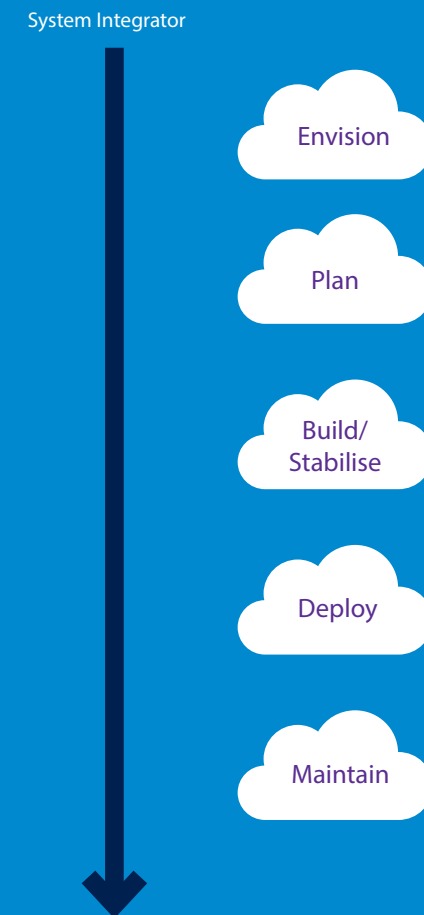
Stage One: Envision

The SI will work with the school to demonstrate the advantages of moving to cloud services. Advantages that should be discussed and demonstrated are:
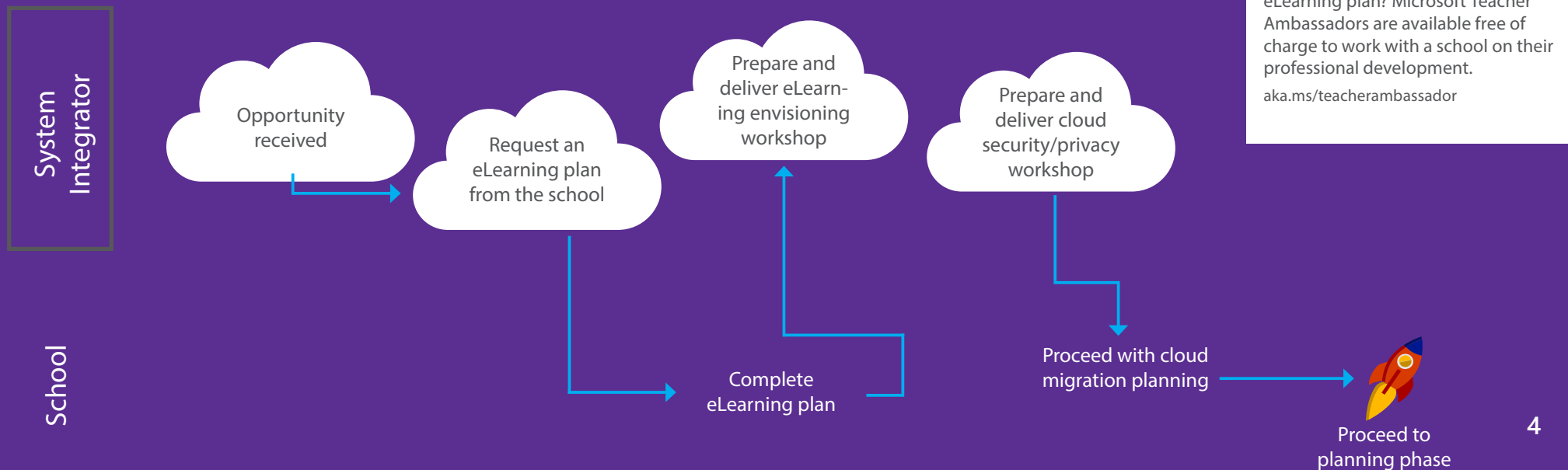
- Improved access to cloud based teaching, learning and collaboration tools from Anywhere, Anytime.
- Improved Security and Privacy, including better Monitoring and Activity Logging.
- Improved infrastructure reliability, maintainability and supportability.
- Improved backup and disaster recovery.
- Decreased infrastructure, service and license costs.
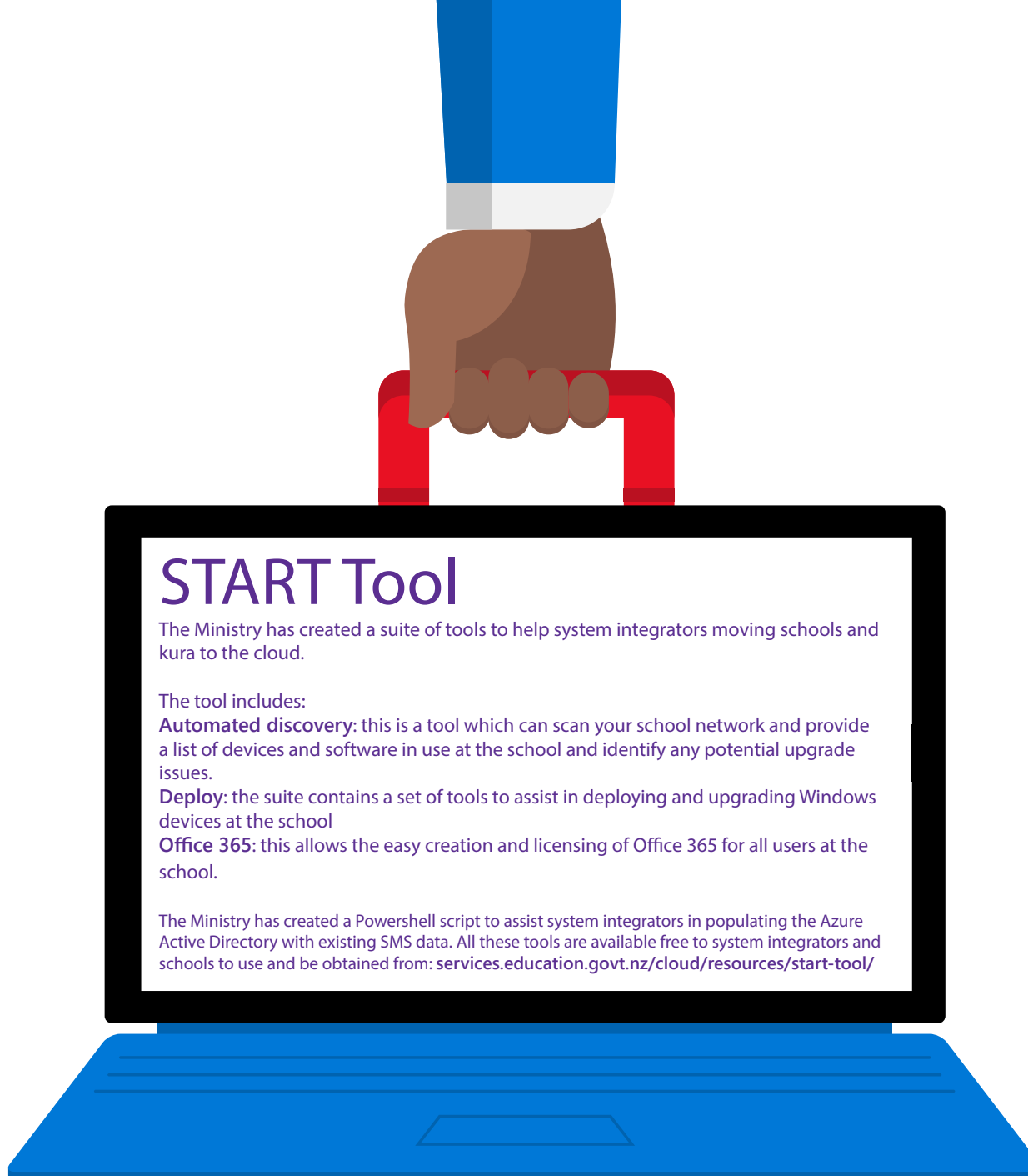
Tasks for this phase:

Here are the sugested tasks associated with this stage and who should complete them.

☑ Initiate contact from school for cloud delivery

☑ Opportunity received from School   SI

☑ Provide an eLearning Envisioning Plan template to the school to fill in with their vision of the future state.   SI

☑ Complete eLearning Envisioning Plan   School

☑ Prepare and deliver eLearning Envisioning Plan workshop to demonstrate technologies used in the future state to SLT and Teachers. Revise plan as required.   SI

☑ Prepare and deliver cloud security/privacy workshop with Senior Leadership Team.   SI

☑ Proceed with cloud migration planning   SI

eLearning Plan

Is the school you're working with unsure where to start on their eLearning plan? Microsoft Teacher Ambassadors are available free of charge to work with a school on their professional development.

aka.ms/teacherambassador

Fig. 1: Envision Process Map

System Integrator

- Opportunity received
- Request an eLearning plan from the school
- Prepare and deliver eLearning envisioning workshop
- Prepare and deliver cloud security/privacy workshop

School

- Complete eLearning plan
- Proceed with cloud migration planning
- Proceed to planning phase

START Tool

The Ministry has created a suite of tools to help system integrators moving schools and kura to the cloud.

The tool includes:
Automated discovery: this is a tool which can scan your school network and provide a list of devices and software in use at the school and identify any potential upgrade issues.
Deploy: the suite contains a set of tools to assist in deploying and upgrading Windows devices at the school
Office 365: this allows the easy creation and licensing of Office 365 for all users at the school.
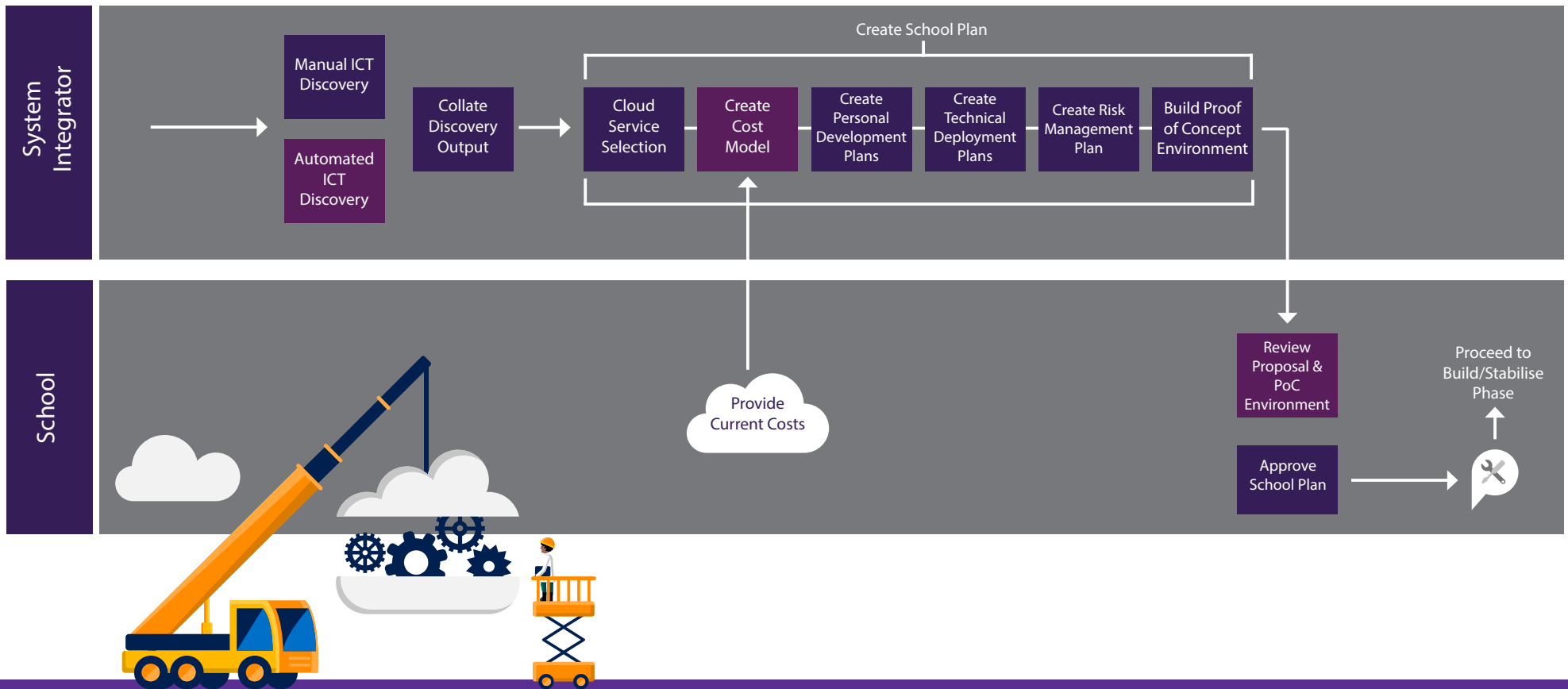
The Ministry has created a Powershell script to assist system integrators in populating the Azure Active Directory with existing SMS data. All these tools are available free to system integrators and schools to use and be obtained from: **services.education.govt.nz/cloud/resources/start-tool/**

Stage Two: Plan

A System Integrator will work with the school to develop a school-specific plan for the integration of the school with Cloud available services, decreasing their on-premises infrastructure requirements.

Fig. 2: Plan Phase Process Map

System Integrator

Create School Plan

- Manual ICT Discovery
- Automated ICT Discovery
- Collate Discovery Output
- Cloud Service Selection
- Create Cost Model
- Create Personal Development Plans
- Create Technical Deployment Plans
- Create Risk Management Plan
- Build Proof of Concept Environment

School

- Provide Current Costs
- Review Proposal & PoC Environment
- Approve School Plan
- Proceed to Build/Stabilise Phase

Tasks for this phase:

Here are the sugested tasks associated with this stage and who should complete them.

☑	Network Discovery and Health analysis. Liase with N4L	SI
☑	Manual ICT Discovery	SI
☑	Automated ICT Discovery (with START tool)	SI
☑	Discover printing and working out future equivalency	SI
☑	Collate Discovery output	SI
☑	Select appropriate Cloud Services	SI
☑	Provide Current Costs Questionnaire	SI
☑	Provide Current Costs Questionnaire	School
☑	Create Cost Model	SI
☑	Create Personal Development Plans	SI
☑	Create Technical Deployment Plans	SI
☑	Create Risk Management Plan	SI
☑	Create School Plan from Personal, Technical and Risk Management Plans	SI
☑	Build Demonstration Environment for school based on eLearning envisioning plan and school plan	SI
☑	Provide demonstration hardware to SLT to review new environment	SI
☑	Review proposal and sign off school plan	School
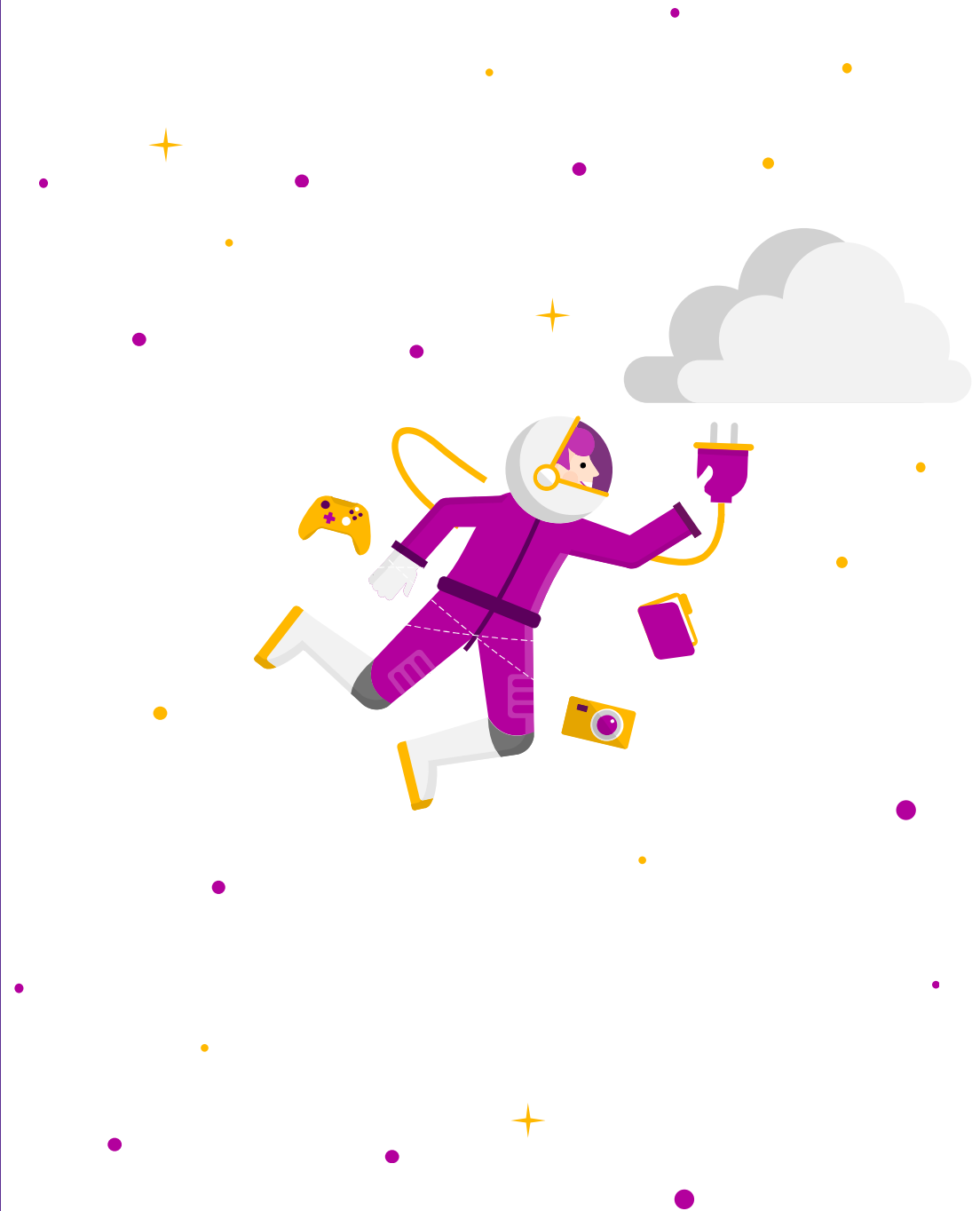
Build your children's future on a strong foundation

The following Microsoft tools are available free.

Introduce Cloud services

Provide students and staff with rich learning capabilities while minimising technology management costs through Office 365, Azure, and Microsoft Intune.

Rationalise the school's Applications portfolio

Use Azure AD Cloud App Discovery to discover all the software applications. Then work with staff to suggest and replace overlapping applications with all-encompassing ones, and find alternatives to on-premises applications with Software-as-a-Service (SaaS) to reduce TCO.

Once the school is happy with the ideal portfolio, register all of their 3rd party SaaS-applications in Azure AD to provide single sign-on capabilities. Then sync their on-premises AD to Azure AD to provide synchronised data and write-back capabilities between active directories.

Deploy Office 365 Education

- Students and staff simply sign in with their educational email address to download the latest Office apps including Word, Excel, PowerPoint, OneNote and Publisher on up to five personal devices.
- Users get 1TB of Cloud storage on OneDrive. The school can self-manage this with the help of additional services offered by you.
- Take advantage of Yammer to offer the set up of social media sites for the whole school, subject areas, sporting or interest groups.

Extend the opportunities with Office 365 Pro Plus benefits

- Enhance the Office 365 experience and provide extended usability with full offline copies of Office 365 on up to 5 machines and 5 mobile devices for students and staff.
- Includes the latest versions of Access, Excel, Skype, OneNote, Outlook, PowerPoint, Publisher and Word, which users can load onto their devices.

Set up collaboration

Improve the user experience

Help schools collaborate more effectively and work using shared learning spaces in the cloud.

Provide a consistent experience across PCs, laptops, tablets and smartphones for students and staff.

Use SharePoint for shared learning and collaboration

Many schools will want to use Cloud services to improve collaboration and provide a central repository for learning resources, school forms etc, presenting an opportunity to create IP around SharePoint.

Staff collaboration is often a key focus, and smart shared workspaces on SharePoint can replace shared network drives (typically S:Drive).

Introduce Unified Communications

Replace the school PABX with unified communications bringing students and staff the power of a single inbox with Presence and Instant Messenger. Set up webconferencing and teleconferencing to support distance learning, parent-teacher interviews and the ability to connect to remote experts.

Students and staff have single sign-on access to services and applications on any device from anywhere. You can help them set and reset passwords, establish and manage groups, install applications and manage student and staff devices.

Windows 10

Windows 10 has powerful management features that make it easier to control BYOD and 1-to-1 learning environments.

- Windows 10 Education has in-place upgrades and dynamic provisioning and it's easy to safeguard identity. Students have the convenience of a password and the added security of the best multi-factor solutions, as well as anti-theft and anti-phishing to protect them online.
- You can protect essential student files with disk encryption, data loss prevention and data separation.
- Student-owned devices can also have a Windows 10 Education upgrade, keeping the user experience consistent.
- Use the Device Guard feature to lock devices down so they only run the applications you nominate.
- Enrol or un-enrol student devices to remotely control accounts, security settings and VPN configurations.

Provide secure access to resources

Strengthen device management

Enable students and teachers to use their school credentials to launch applications from a personalised web catalogue or mobile app.

Enable students and teachers to confidently bring personal devices to school. Manage BYOD and institution-owned tablets and smartphones with Microsoft Intune.

Instead of the school firewall and network appliances controlling access to services, security now needs to be tied into identity, which should contain all relevant authorisation information. Some services or applications may need to match identity with the assigned device to gain access.

Trusted devices have single sign-on capabilities and (if required) enforced security policies. This gives you an organisational view of devices. The following are all included in the NZ Microsoft Schools Agreement.

Microsoft Azure Active Directory (AAD)
- Set up single sign-on to simplify user access to Office 365 and other SaaS-applications, as well as on-premises applications from Windows, Mac, Android and iOS devices. Multi-Factor Authentication prevents unauthorised access to both on-premises and Cloud applications.
- Set up self-service Password Change and Reset for students and staff.
- Set up self-service Group Management for teachers or year groups.
- Use the Application Proxy module to publish on-premises web applications with secure remote access and single sign-on.
- Security monitoring and alerts and machine learning-based reports identify inconsistent access patterns to mitigate potential threats.

School Data Sync
- Use this to automate the process of importing and integrating school Student Information Systems (SIS).
- It also provides a single Cloud API for creating applications that integrate with multiple SIS providers, along with single sign-on capabilities.

Microsoft Azure AD
- This comprehensive identity and access management Cloud solution lets you manage users and groups and provide secure access to applications.
- Manage devices and provide Multi-Factor Authentication capabilities.

Microsoft Intune
- Has an option for managing "difficult to reach" devices that are consistently outside firewalls, ensuring security and accessibility.
- Has a cost-effective way to extend management coverage to small or remote schools and campuses by creating an integrated environment.
- Can be deployed without on-premises infrastructure.
- Create and manage an application library for the school. This is one core area where you can build IP for a managed service.

The Enterprise Mobility Suite (EMS)
- Help your client access tools to manage mobile and desktop devices, applications, security, identity and access rights.
- EMS includes Intune Mobile Device Management, Azure Active Directory Premium, Azure Rights Management and Advanced Threat Analytics.

Introduce education analytics

Train teachers and staff

To improve institution effectiveness, use Power BI to deliver real-time analytics.

Connect school systems so that they can use their data to track and evaluate trends and improve planning and decision-making.

Power BI

- Use Power BI to give schools a 360-degree view of performance and operations with easy-to-use data visualisation tools that simplify access to data and make it easier to share key metrics with stakeholders.
- You can speed up analysis and time to insight with the familiarity of Excel and Power BI in Office 365, as well as access via mobile devices.
- Run it on Windows Azure to deliver the benefits of Cloud computing.

Cortana Intelligence Suite

- To bring additional power including predictive analytics to your school, use Cortana Intelligence Suite, a fully managed big data and advanced analytics suite that enables you to transform school data into intelligent action.
- For example Tacoma Public Schools are using it to predict high school student drop-out risks, increasing graduation rates from 55 to 78 percent.

Ensure teachers and staff are upskilled and ready to use the new tools and technology available to them.

Microsoft sponsors professional development oppoortunities - from hands-on sessions with experienced teachers to online communities and training courses.

Upskill your staff

- The Microsoft Educator Community offers your teaching staff structured learning pathways to help them advance. The courses and recognition provide measurable PD for teachers and help them become more confident in their use of digital technology.
- Visit education.microsoft.com to register and get started.

Request training in your school

- You may also wish to engage a Microsoft Teacher Ambassador to help you upskill and inspire teachers. We have six Teacher Ambassadors across New Zealand who bring learning to life with the latest Cloud solutions. Energetic, knowledgable and tech-savvy, they provide free professional development, responding directly to requests from schools.
- Teacher Ambassadors have hands-on experience integrating technology into curriculum and can help your staff build the confidence and skills to use technology effectively.
- Email nzeducation@microsoft.com to book a session.

Stage Three: Build

Stabilise and Prepare

The Systems Integrator will ensure the school's target network is stabilised and working correctly prior to updating the school's environment.

Build

The System Integrator provisions the cloud-based ICT services that the school will be using. They ensure that the services are set up and working correctly prior to the rollout to staff and students.

Note: *Much of the build and stabilise phase could take place without impacting existing school IT services, reducing the time and impact required to shift a school to the cloud.*
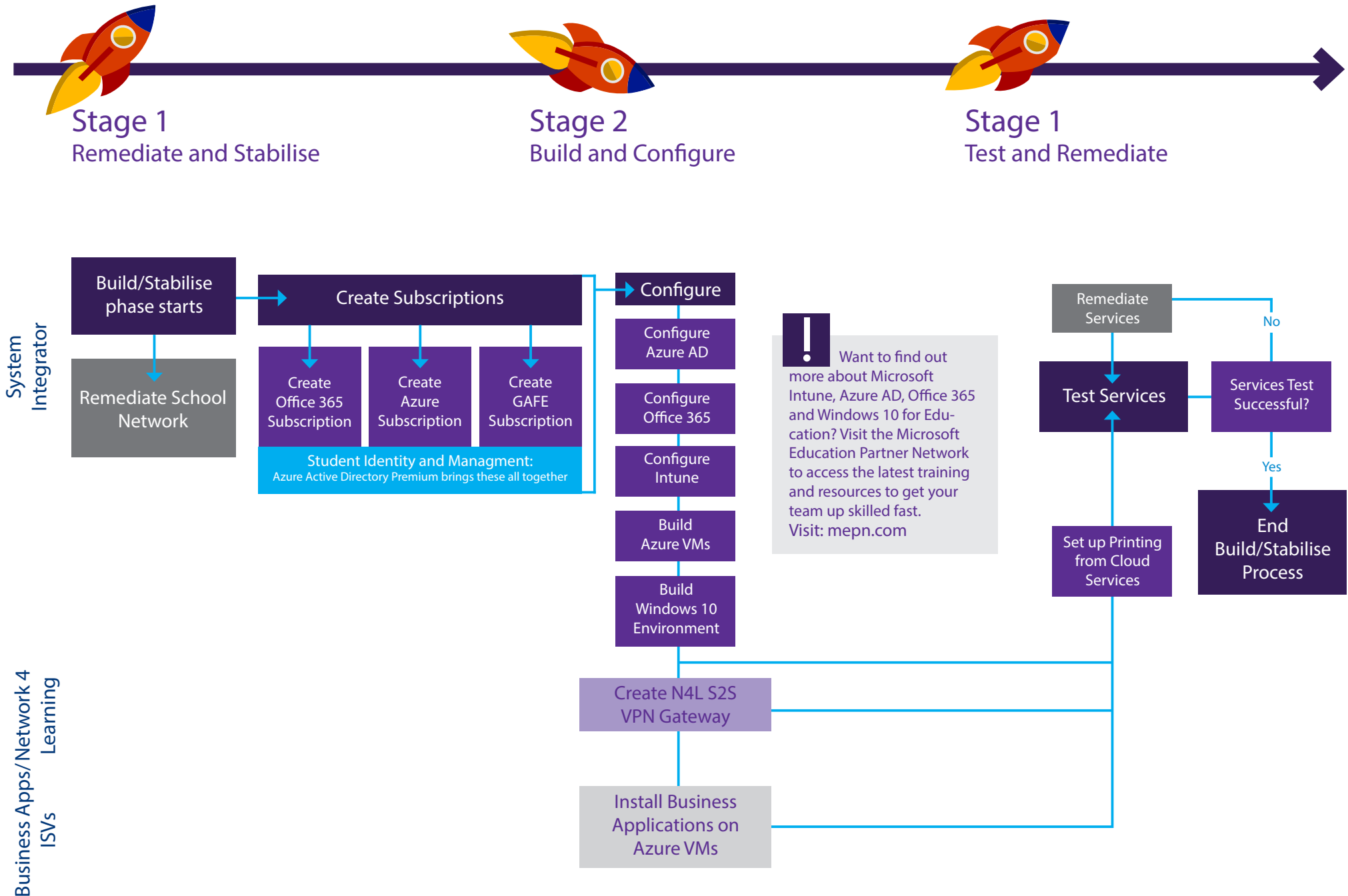
Tasks for this phase:

Here are the sugested tasks associated with this stage and who should complete them.

☑	Contact Datacom and organise licensing for school	SI
☑	Remediate School Network	SI
☑	Create S2S VPN Gateway *(optional)*	N4L
☑	Ensure/Create Office 365 Subscription	SI
☑	Verify Azure AD	SI
☑	Extract student/teacher and group details from SMS via CSV or connect SMS directly through School Data Sync	SI
☑	Ensure/Create Azure Subscription	SI
☑	Ensure/Create GAFE Subscription	SI
☑	Configure Azure AD	SI
☑	Configure Office 365	SI

☑	Build Azure VMs if required *(optional)*	SI
☑	Install Business Applications on Azure VMs (using START)	SI
☑	Configure Microsoft Intune	SI
☑	Build Windows 10 environment	SI
☑	Build Mac OSX environment	SI
☑	Set up Printing	SI
☑	Test Services	SI
☑	Remediate Services	SI
☑	Complete checklist and create phase completion report	SI
☑	Ensure/Create Office 365 Subscription	SI

Fig. 3: Build Phase Process Map

Stage 1
Remediate and Stabilise

Stage 2
Build and Configure

Stage 1
Test and Remediate

System Integrator

Build/Stabilise phase starts

Remediate School Network

Create Subscriptions

Create Office 365 Subscription

Create Azure Subscription

Create GAFE Subscription

Student Identity and Managment:
Azure Active Directory Premium brings these all together

Configure

Configure Azure AD

Configure Office 365

Configure Intune

Build Azure VMs

Build Windows 10 Environment

! Want to find out more about Microsoft Intune, Azure AD, Office 365 and Windows 10 for Education? Visit the Microsoft Education Partner Network to access the latest training and resources to get your team up skilled fast.
Visit: mepn.com

Remediate Services

No

Test Services

Services Test Successful?

Yes

Set up Printing from Cloud Services

End Build/Stabilise Process

Business Apps/Network 4 Learning

ISVs

Create N4L S2S VPN Gateway

Install Business Applications on Azure VMs

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Stage Four: Deploy

Deploy

The Systems Integrator moves the production services and data to the cloud-based environment and validates services are running successfully. They also provide the skills and training necessary to use the cloud services and provide digitally-enabled teaching.
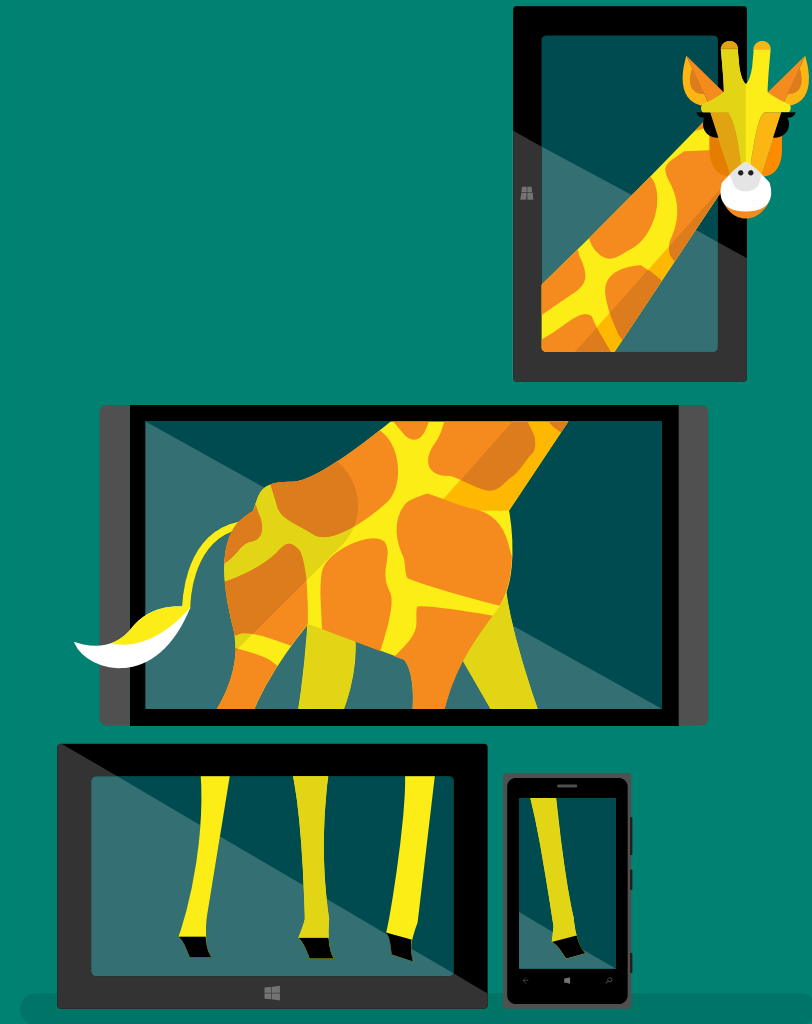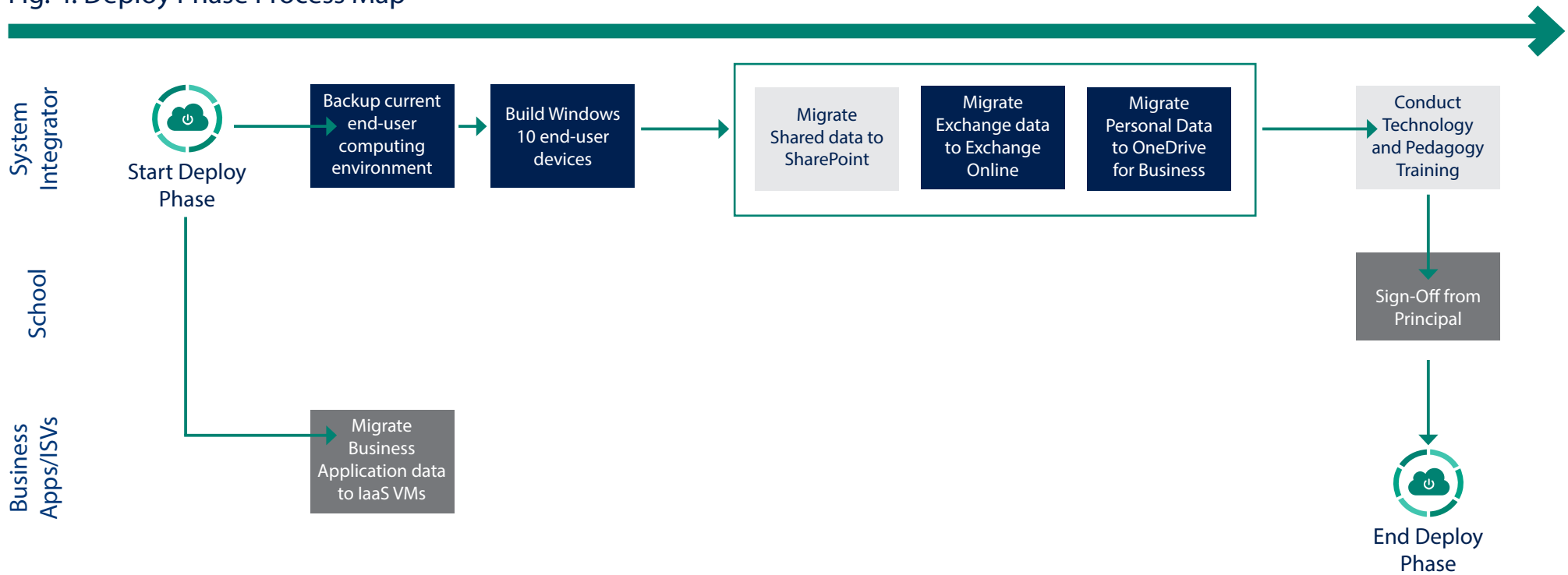
Fig. 4: Deploy Phase Process Map

System Integrator

Start Deploy Phase → Backup current end-user computing environment → Build Windows 10 end-user devices → [Migrate Shared data to SharePoint | Migrate Exchange data to Exchange Online | Migrate Personal Data to OneDrive for Business] → Conduct Technology and Pedagogy Training

School

Sign-Off from Principal

Business Apps/ISVs

Migrate Business Application data to IaaS VMs

End Deploy Phase

Tasks for this phase:

Here are the suggested tasks associated with this stage and who should complete them.

- ☑ Migrate Business Application data to new Services, if required — SI
- ☑ Backup current end-user computing environment — SI
- ☑ Build Windows 10 end-user devices — SI
- ☑ Build Mac/Chromebook end-user devices — SI
- ☑ Migrate Staff shared data to SharePoint — SI
- ☑ Migrate Classroom shared data to Share-Point/Google Drive/OneDrive — SI

- ☑ Migrate Exchange data to Exchange Online or Gmail — SI
- ☑ Migrate staff personal data to OneDrive for Business — SI
- ☑ Deployment and Migration stage checklist completed — SI
- ☑ Sign-Off from Senior Management Team — SI

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Stage Five: Training and Handover

One of the most important processes is delivering training to the staff and teachers at the school. System Integrators are required to provide basic training to staff on how to access their data and changes to the location of files etc.

Stage Six: Maintain

Once the cloud-based envrionment has been implemented, there are activities that the Systems Integrator can lead that contribute to the continued realisation of value from the school's investment in cloud services.

The NZ Microsoft Schools Agreement

The NZ Ministry for Education has extended the Schools Agreement with Microsoft to support their strategic intent of moving schools to a Cloud-centric model for IT.

This Microsoft Enrolment for Education Services (EES) Agreement covers schools until 31 December 2018

Microsoft products licensed for school computers
- Windows Server 2016
- Microsoft Office 2016
- Client Access Licences
- Windows OS upgrade from qualifying OS

Microsoft's key on-premises software
- Windows 10
- Office 2016
- SharePoint 2016
- Exchange 2016
- Server 2016
- Skype for Business

The Enterprise Mobility Suite
- Tools to manage mobile and desktop devices, applications, security, identity and access rights, including Intune. Mobile Device Management, Azure Active Directory Premium, Azure Rights Management and Advanced Threat Analytics

New for students' and teachers' personal devices
- Office 365 Pro Plus
- Latest versions of Access, Excel, Skype, OneNote, Outlook, PowerPoint, Publisher and Word
- Students and staff can load up to 5 copies of the client software on their own computers (Mac/PC) and mobile devices (Windows/Android/iPhone)
- New management software for schools.

If you do not know your login credentials or are unsure whether a piece of software is free for your school, please contact nzschools@datacom.co.nz