NSAI Standards

SWiFT 10:2012

Adopting the Cloud – decision support for Cloud computing

SWiFT 10:2012

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SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

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NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

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Acknowledgement

NSAI would like to acknowledge input of the Irish Internet Association (IIA) Cloud Computing Working Group in the development of this SWiFT, and the work of ISO/IEC JTC 1 SC 38 final report of the Study Group Report on Cloud Computing. In particular NSAI wishes to acknowledge the work of Lavinia Morris (Friends First) who chaired the working group and Joan Mulvihill the CEO of the IIA for steering the work of the project.

The Irish Internet Association is the trade association for all internet businesses in Ireland. The association which has been in existence since 1997 is tasked with connecting businesses, promoting online business, providing knowledge and expertise for all companies looking to engage with online services or selling. Members range from the largest multi-national corporations to independent developers, start-ups and SME consumers of technology.

The IIA Cloud Computing Working Group is a collaboration of expert practitioners and business leaders (Chief Information Officers, Chief Technical Officers, Heads of IT, Legal, Consultancy) from a variety of business sectors and organization sizes in Ireland. The group, which has equal representation from both the Cloud vendor and Cloud customer communities, seeks to educate decision makers with a balanced view of the advantages, challenges, opportunities and limitations of Cloud Computing.

Foreword

This document SWIFT – **S**tandardized **W**ithin the **F**ast **T**rack (process) was developed based on the consensus of the individuals listed below all of whom are members of the IIA Cloud Computing WG.

Lavinia Morris	Friends First
Joan Mulvihill	Irish Internet Association
Trevor Dagg	Talentevo
Niall Moran	Lucey Technology
Peter O'Neill	Mason Hayes & Curran
Pearse Ryan	Arthur Cox
Gerry Power	Sysco
Padraig Sugrue	Accenture
Mark Greville	Bank of America Merrill Lynch
Brona Kernan	Irish Times
Jared Carstensen	Deloitte
Wilbour Craddock	Microsoft
Keith Eccles	Oracle
Stephen Moffatt	IBM
Cian Blackwell	Grant Thornton
Sean Hickey	H&K International
Noel Comerford	ESB

Introduction

Cloud computing is undoubtedly one of the most widely discussed innovations of the last few years. Both national and international growth predictions are staggering and as a result every organization is asking itself, whether it should be considering Cloud computing.

Cloud computing, however, covers such a wide variety of information technology (IT) from the relatively simple to the extremely complex that many people find the term confusing. It is not surprising, therefore, that when organizations seek to use Cloud computing there are many questions to consider and it is not always clear where to start.

The IIA Cloud Computing Working Group in conjunction with the National Standards Authority of Ireland have devised a Decision Support Matrix designed to provide guidance to organizations both large and small on the various items that need to be considered when adopting Cloud computing. When considering Cloud adoption it is important for organizations to be fully informed of both the risks and benefits. These will vary from business to business and from application to application as no two organizations are alike.

This SWiFT serves to provide a generic series of questions across a broad range of categories. It is not intended to be an exhaustive examination of this rapidly evolving area but rather a guide based on the experiences of the Working Group to date. Not every question will be relevant to every deployment and what presents a challenge for one organization could be a benefit for another depending on the nature of the deployment, the application being considered and the organization in question.

What is Cloud computing?

There have been many official definitions of Cloud computing developed over the past number of years. The definition of Cloud computing that underpins this SWiFT is that from National Institute of Standards and Technology and ISO/IEC JTC 1 (see Figure 1). Full details of this definition can be found in Annex A of this guide. Annex B provides a useful summary of Cloud computing initiatives taken from the ISO/IEC JTC 1/SC 38 Study Group Report on Cloud Computing.

At a basic level Cloud computing is about using computing services based in the internet (or the Cloud) rather hosting them locally. In reality many people are already using Cloud computing in everyday life without even realizing it. Services such as e-mail, social networking, photo sharing, etc. are all forms of Cloud computing. From a business perspective Cloud computing is essentially an evolution of managed services and outsource arrangements that have been available for many years.

In a general sense Cloud computing can be divided into three delivery models, four deployment models and five essential characteristics as described below. The characteristics of each are quite different and therefore it is important to understand them when considering Cloud computing.

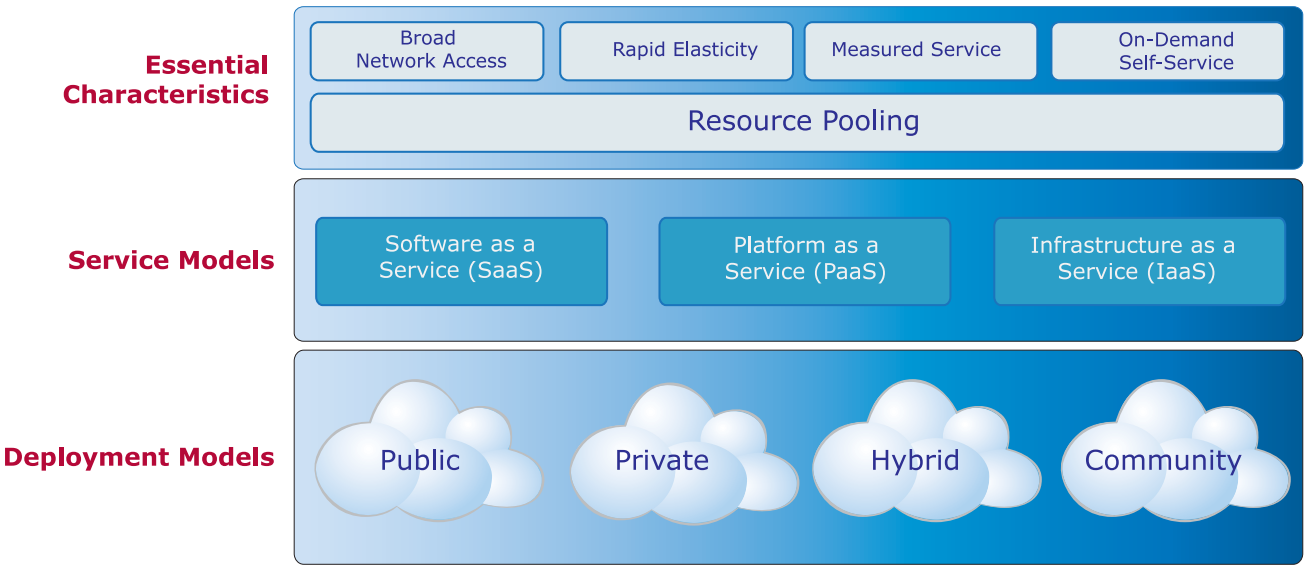

Figure 1 — NIST definition of Cloud Computing

Delivery models:

1) *Infrastructure as a Service (IaaS):* as the name suggests this is essentially the provision of infrastructure services or piping and plumbing (e.g. servers, storage, network, etc.) in the Cloud.

2) *Platform as a Service (PaaS):* under this model, as well as providing the underlying piping and plumbing the vendor also provides the application development platform for development of applications.

3) *Software as a Service (SaaS):* probably the most well-known version of Cloud Computing; under this model the vendor provides the entire suite of services from the underlying piping and plumbing to the application itself.

Essential characteristics:

1) *On-demand self-service.* A consumer can unilaterally provision computing capabilities, such as server time and network storage, as needed automatically without requiring human interaction with each service provider.

2) *Broad network access.* Capabilities are available over the network and accessed through standard mechanisms that promote use by heterogeneous thin or thick client platforms (e.g., mobile phones, tablets, laptops, and workstations).

3) *Resource pooling.* The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand.

4) *Rapid elasticity.* Capabilities can be elastically provisioned and released, in some cases automatically, to scale rapidly outward and inward commensurate with demand.

5) *Measured service*. Cloud systems automatically control and optimize resource use by leveraging a metering capability[1] at some level of abstraction appropriate to the type of service (e.g., storage, processing, bandwidth, and active user accounts).

Deployment models:

1) *Private Cloud.* The Cloud infrastructure is operated solely for an organization. It may be managed by the organization or a third party and may exist on premise or off premise.

2) *Community Cloud.* The Cloud infrastructure is shared by several organizations and supports a specific community that has shared concerns (e.g., mission, security requirements, policy, and compliance considerations). It may be managed by the organization or a third party and may exist on premise or off premise.

3) *Public Cloud.* The Cloud infrastructure is made available to the general public or a large industry group and is owned by an organization selling Cloud services.

4) *Hybrid Cloud.* The Cloud infrastructure is a composition of two or more Clouds (private, community, or public) that remain unique entities but are bound together by standardized or proprietary technology that enables data and application portability (e.g., Cloud bursting).

Intended user of this SWiFT Document

SWiFT 10 has been developed for use by businesses of all sizes considering the adoption of Cloud Computing. Ultimately the decision to adopt Cloud Computing is a strategic technology decision and therefore it is important that all relevant parties are engaged in this analysis. Every effort has been made to make the guide as straightforward as possible but some technical input will be required in certain areas. For large organizations with dedicated IT departments we recommend the guide be completed by the CTO in conjunction with the appropriate representatives from other areas of the organization such as legal, compliance, operations, finance, etc. For smaller organizations we recommend the guide be completed by the CEO with input from a trusted IT supplier or a 3rd party expert practitioner in the area of Cloud Computing.

Disclaimer

This document is intended to support businesses and organizations of all types in making decisions on the adoption of Cloud technologies. It is a general guide intended to cover a wide range of circumstances, and cannot reflect all of the particular requirements of every organization. Ultimately, any decisions on the adoption of business technology should be made by users based on their own judgement, supported by professional advice where required. Neither the authors nor the publishers of this document can accept liability for any loss incurred by any person acting or refraining from acting on as a result of material in this document.

[1] Typically this is done on a pay-per-use or charge-per-use basis

Adopting the Cloud – decision support for Cloud computing

1 Scope

This SWiFT has been compiled as a generic guide to encompass all Cloud delivery models and deployment models. It is intended for use as a means of assessing Cloud adoption suitability and should be used in conjunction with available reference models for a deeper analysis.

2 Terms and Definitions

For the purpose of this document the following terms and definitions apply. These definitions are not necessarily identical to the ISO/IEC definitions.

bandwidth
rate of data transferred in or out of a network

NOTE Usually measured in bits per second

data centre
facility used to house computer systems and associated components, such as telecommunications and storage systems.

NOTE It can be customer owned or supplier owned

data controller
person who, either alone or with others, controls the contents and use of personal data, as specifically defined in the Data Protection Acts (DPA)

data processor
person who processes personal data on behalf of a data controller but does not include an employee of a data controller who processes such data in the course of his employment, as specifically defined in the DPA

eDiscovery
any process by which electronic data are sought, located, secured, and searched with the intent of using them as evidence in a civil or criminal legal case

escrow
source code and documentation that is kept in the custody of a third party until specified contractual conditions have been fulfilled

[SOURCE: ISO/IEC 26514:2008]

multi-tenancy
provision of the same implementation of a system to multiple customers (tenants)

on-premise
infrastructure, software and/or IT services installed and running in the building or data centre of the person or organization using them

open-source
software development whereby the code is freely available

NOTE The resulting software is then normally provided to customers free of charge although enterprise support agreements are available in some cases.