Hybrid and Multi-cloud Infra- structures

CHOOSING YOUR WAY TO PERFORMANCE

econocom

introduction

Information technology vendors have always sought to sell a miracle solution which in replacing the previous technology met all the needs and solved all the problems, irrespective of the company, its size or line of business. We must acknowledge today that this has never been the case and probably never will be. Owing to the specific history, choices, stakes and priorities of each company, various technologies necessarily coexist and information systems are destined to be heterogeneous.

Conversely, the digital revolution is a reality that imposes itself uniformly on all organizations. All companies are faced with new economic models, new digitized processes, new uses, new performance and availability requirements, new threats, new regulations, etc., and the information system has to adapt accordingly, not

in order not only to be able to meet these challenges but to continue to do so tomorrow and the day after tomorrow. The digital revolution has brought uses and users in the centre of the system and the B2C standards of excellence are imposed on the company.
At issue for the ISD is how to ensure the digital transformation of the company while relying on a fundamentally heterogeneous environment.

As this heterogeneity is a fact, the aim is to turn it into an asset. The company must be able to choose its path of development to capitalize on all the options available where and when needed, without running the risk of becoming a prisoner of its choices. This path entails chartering the course of hybrid and multicloud infrastructures and is within reach of all companies.

% of infrastructure provided by the (public and/or private) cloud
(CXP/ PAC, 2017)

100%	0%
75-99%	10%
50-75%	15%
25-50%	39%
1-25%	31%
0%	5%
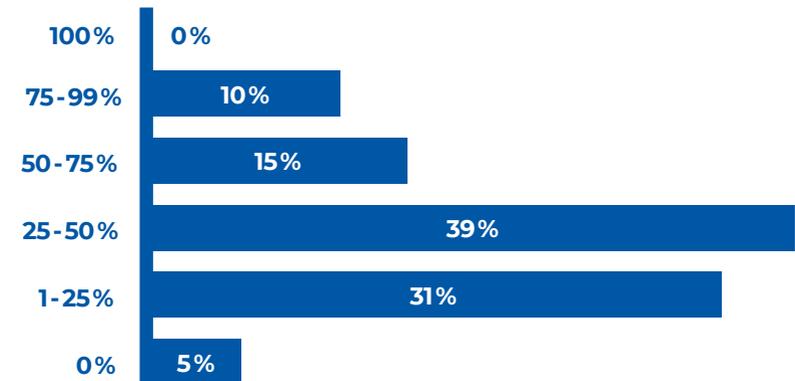
Global market of public cloud services in 2018
(Gartner, 2018)

$186,4 billion
+21,4% over one year
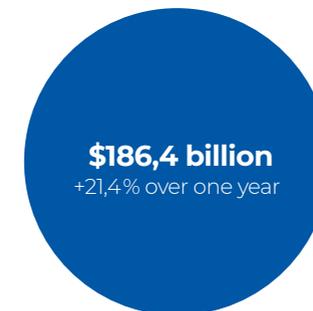
01

The infra-structure of the future

will be heterogeneous or not at all

The digitized company in the face of its new challenges

According to a study[1] conducted by CXP / PAC for Econocom, nearly all French large and medium-sized businesses and administrative bodies have already embarked on their digital transformation. In other words, digital technology is everywhere: in your company, customers, suppliers and competitors. The technology is no longer a differentiator in and of itself. Its contribution is henceforth measured by the way it is used by the company to adapt and succeed in a rapidly changing economic and societal environment.

Which of these statements describes best the "digital transformation path" of your IT infrastructure?
©PAC- a CXP Group Company, 2017

Our organization is fully focused on the digitization of its infrastructure — **16%**

We have already launched some projects successfully — **39%**

At the very beginning, first pilot projects — **43%**

Have not started yet; we are still assessing/discussing opportunities — **1%**

1. Préparez votre infrastructure au numérique, Econocom/ CXP, 2018.
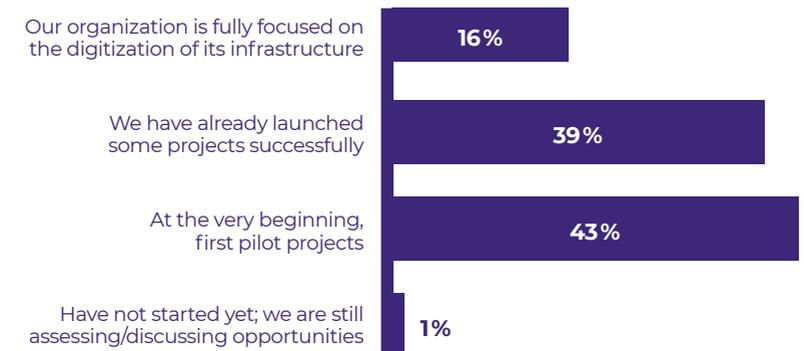
In this respect, IT is in the front line to help companies meet three major challenges:

Value creation

Technology must be a lever or doing things different, faster and better.
Presented in the form of packaged services for optimal efficiency and experience, it improves the productivity of the workforce. It promotes agility, cooperation and the dissemination of information in decompartmentalized, less hierarchical professional communities. It strengthens innovation by stimulating creativity and by opening up new opportunities for products and services. Finally, it shortens the time to market by streamlining the decision-making and execution chain.

Intangible asset control

As digitization progresses, the company's activity relies more and more on intangible elements: applications whose availability and performance have to be in line with the expectations of customers and external users; data that have to be secured and used in compliance with the regulations; intellectual property, trademarks, a reputation that has to be closely monitored, etc. One of the key missions of IT is to guarantee the reliability, integrity, efficacy and conformity of these intangible assets while promoting their decompartmentalization and opening.

Cost reduction

With automation, rationalization, anticipation, adjustment of resources to needs, the modernization of systems that are expensive to run, the reduction of the energy footprint, etc., IT can make a significant contribution to reducing the company's operating costs. Above all, however, it can help the different lines of business to reduce their costs through all sorts of optimizations based on harnessing of data.

Against this background, all the links of the technical chain, down to the lowest tiers of the infrastructure, must be designed, chosen, operated and accessed along these three main lines. A server will be judged to be effective not on its intrinsic characteristics, but on its capacity to provide the quality of service expected by the end users at the lowest cost.

Furthermore, in a rapidly changing environment, the optimal solution today might no longer be so tomorrow. It is therefore vital for the technical base to boast the necessary agility and flexibility so that the company can adjust its strategy dynamically.

A differentiated infrastructure is the key to the digital transformation

When ISDs are asked about the objectives they set for the development of their infrastructures, they clearly cite the three key challenges to the digital transformation: value creation, cost reduction and intangible asset control. As shown by the results in the table below, IT managers focus particularly on the latter aspect which falls exclusively under their purview, indicating that their priority challenges are the performance and availability of systems, their operational control and their conformity. Nevertheless, the fact that they consider innovation more important than reducing cost, or that increasing employee motivation gets a relatively high score, is telling of the new challenges that they assign to infrastructure in the age of digital transformation.

Infrastructure is no longer that rather massive and vague, one-size-fits-all base whose role was limited to providing a foundation and security for the information system. Infrastructure choices henceforth have a decisive impact on business. They provide developers with the flexibility needed to carry out their projects in agile fashion; data scientists with the environments that enable them to explore and use data as they want; the marketing and sales department with the capacity to absorb traffic peaks caused by a promotional operation, etc.

As the foundation stone of digital services, infrastructure must therefore be cut to measure to suit the needs and the context of use: type of user, level of performance and security expected, optimal value for cost, etc. To meet the challenges of the digital transformation, the ISD will not necessarily try standardize its infrastructure with a vengeance, but will rather endeavour to acquire a range of platforms suitable for the diversity of the cases of use, and provided in the form of clearly differentiated services to IT users and lines of business.

Which of these statements do you consider as a major, minor or no objective for the digital transformation of your infrastructure?
Source: CXP-PAC 2018 study
Prepare your infrastructure for digital technology

	Major objective	Minor objective	No objective
Performance and availability	58%	33%	9%
Preserve the control of my own systems	53%	39%	8%
Conformity (data location, security)	51%	43%	6%
Promote innovation	47%	37%	16%
Reduce costs	47%	40%	13%
Increase employee motivation	43%	41%	16%
Agility	37%	49%	14%
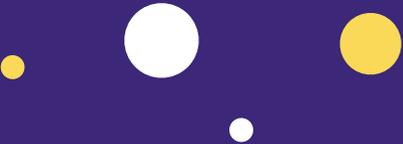
Four models expected to coexist

To provide optimized infrastructure services according to needs, ISDs have four major options, each with its advantages and limitations.

Traditional on-premise model

Historical systems based on pre-virtualization technologies still make up a significant part of the French IT population. Whether operated by the companies themselves in their own data centres or outsourced to IT managers, they often contain the core of the company's expertise: its management rules, processes optimized over long periods, clients, etc. Criticized in many respects, these systems are often the result of heavy investments and must therefore be protected.

Many of them still fulfil their task for many transactional needs, even if they often wind up with debilitating limitations in terms storage or performance, for example. Their maintenance may also prove burdensome due to the cost of licences for proprietary software and an increasing scarcity of skills. Finally, they suffer from a deficit of opening and agility which stands in the way of innovation and of capitalizing on the application portfolio.

(+) stability, tried and tested technologies
(–) cost, lack of opening and agility

Private on-premise cloud

Taking advantage of virtualization technologies in particular, the private cloud model operated at the client has imposed itself as a middle path, enabling the company to enjoy most of the advantages of the cloud (sharing, elasticity, pay per use, etc.) while retaining direct control of one's systems. Sensitive sectors (finance, defence, energy, transport, etc.) resort to this model in particular for reasons to do with security, conformity and auditability.

Nevertheless, by not taking the cloud rationale to the limit, this model cannot capitalize on its full potential. For example, on its own, a company rarely attains the indispensable critical size to make the most of sharing. Similarly, it has neither the resources nor the expertise needed to maintain its cloud infrastructure at the cutting edge of innovation, so it gradually builds up a technological debt.

(+) control, security
(–) incomplete benefits of the cloud, technological debt

Hosted private cloud

This private cloud model can be outsourced entirely to an IT manager who will see to the operation and maintenance. The systems are reserved for the exclusive use of a single customer for the sake of maximum security. Physically and logically sealed, they can also be located in France or elsewhere in Europe. This approach makes it possible to obtain a customized, secure, and yet flexible and open-ended infrastructure.

Although the issue of critical mass remains, it now concerns only the systems themselves. From the point of view of operating resources and skills, the IT manager is capable of mobilizing more experts and of monitoring technological advancements more closely, and therefore of maintaining each infrastructure at the state-of-the-art level. It is moreover in his interest, because in this model, he will henceforth assume responsibility for the Service Level Agreements (SLAs).

(+) security, customization, technologies at the state-of-the-art level
(–) incomplete benefits of the cloud

Public cloud

Driven by the strength of hyperscalers (Amazon, Google, Microsoft) and a number of independents, the public cloud model is the culmination of the concept of IT on demand, all the more so as it is less expensive and resources are shared on a large scale and invoiced precisely per use. These well-known benefits are ever so topical today thanks in particular to the significant progress made in terms of security and the considerable wealth of the catalogues of services which continue to expand, in particular thanks to tools that specialize in big data, artificial intelligence, the Internet of Things (IoT), etc.

Nevertheless, the public cloud is not free of disadvantages. First, cloud providers do not always provide sufficient advice, integration and operation services so that the solution can be integrated properly, sustainably and effectively in the company's IS, so these aspects have to be attended to. Furthermore, the opposite side of the model's simplicity is its relative rigidity: It is necessary to stick without fail to the recipe established by the operator because any change of ingredient or quantity comes at a heavy price. Finally, the public cloud makes economic sense only if you have a consolidated vision of consumption in real time. Experience has shown that the ease of consuming and the decentralization of purchasing the business-line level are not conducive to discipline. How many times can we see virtual machines that have remained open beyond their issue?
The capacity to manage costs finely is the key to profits.

(+) flexibility of use, savings, innovation
(–) technical constraints, hidden costs, support deficit

Summary table

Model	Pluses +	Minuses -
On-premise traditional model (legacy)	- Stability - Tried and tested technologies	- Cost - Lack of openness - Lack of agility
On-premise private cloud	- Control - Security	- Incomplete benefits of the cloud - Technological debt
Hosted private cloud	- Security - Customization - Technologies at the state-of-the-art level	- Incomplete benefits of the cloud
Public cloud	- Flexibility of use - Savings - Innovation	- Technical constraints - Hidden costs - Support deficit

Hybridization multiplies the possibilities

Thanks to the specific features and respective advantages of the different operational models, the company has a choice that enables it to find the most suitable infrastructure solution for its needs and constraints. Above all, the possibility of composite services that combine two (or more) of these models paves the way to hybrid, finer and more targeted approaches. Packaged and ready to use, these services are then proposed – or even imposed – to developers in response to their predefined situations, whether to minimize costs, improve the quality of service, or limit the risks.

Some cases of use already commonplace provide a good overview of the potential of these hybrid strategies, where the cloud could often hold a paramount position

Cloud bursting

Public cloud resources are expected to take over automatically from the private cloud to manage load peaks that exceed the latter's capacity. This makes it possible to size the infrastructure only for the current operation and to guarantee the continuity of service in case of exceptional demand nonetheless (sales, launch of a new product, hot topic, etc.)

Public front-end / private back-end

In this widespread model, the company opts to keep full control of its data and core business processing, which are both sensitive and stable. Conversely, it puts in the public cloud applications intended for the end users, for greater flexibility in terms of performance and open-endedness.

Specialized services

Applications require more and more frequently specific features or calculations that the company does not necessarily have the interest – or the capacity – to carry out itself, e.g. the simultaneous translation of the statements of a conversational agent or the execution of standard algorithms for big data. In such a case, these resources can be found in the cloud and integrated in the application process.
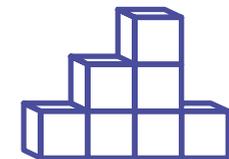
Heterogeneity: a reality and an opportunity

The various infrastructure models, from the traditional internal data centre to the public cloud, have long been presented as successive steps of an inevitable and necessary path to modernity. The perception has now changed. It appears more and more clearly in fact that the infrastructure is destined not for this linear fate, but to diversify in order to meet the multiple needs of users. Furthermore, the urgency of digital technology goes against the major recasting projects which strain the budgets and resources without any certainty as to ROI.

We must therefore no longer aspire to build a vast, single base or to migrate, on principle, all our systems to the public cloud. In the face of a rapidly and constantly changing technological environment and line of business, this is a time for pragmatism, and the infrastructure of the future will most likely comprise some legacy environments for applications whose portability would be superfluous or too risky, a large part of the private cloud for the core business, and multiple services sourced in various public clouds.
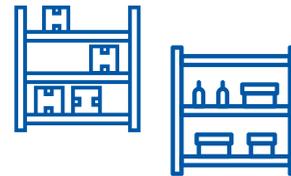
For companies that have embarked on the digital transformation, this heterogeneity and hybrid and multi-cloud strategies are already a reality. The aforementioned CXP/PAC study shows that 95% of companies have placed at least part of their infrastructure in the cloud. For nearly 4 out of 10 companies, this share is already even more than half. Furthermore, according to a study conducted by the publisher RightScale, 81% of the companies have a multi-could strategy, using nearly 5 different clouds on average.

Although it runs counter to recent standardization and consolidation trends, this heterogeneity can ultimately be considered an opportunity to build an optimal infrastructure, differentiated according to needs, and capable of providing close support for the corporate strategy. The challenge will conversely be to manage to define, assemble, orchestrate and improve the multiple services apace with the lifecycle of the application, without ceasing to provide the appropriate service and security levels. We can therefore imagine that a banking application is developed and tested first in the public cloud for the sake of convenience, and then have its transactional component repatriated in the private cloud for the sake of security, from which customer data which have remained in legacy systems will be invoked.

+34,3 %

The annual growth rate of the hybrid cloud market from 2016 to 2022 according to Infoholic Research.
RightScale 2018, State of the Cloud Report™, February 2018.

02

Once mastered,

diversity becomes a force
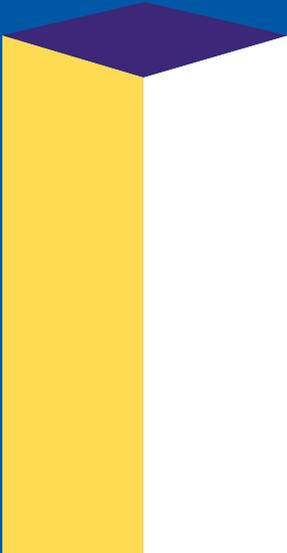
Solving the operational equation

The principle of being able to run every application service on the environment most suitable to its nature, criticality and context of use is undoubtedly appealing – On condition that the different environments can be made to cohabit harmoniously to make the most of their specific features without being hampered by their heterogeneity. But this requires solving a complex operational equation, since it is necessary to solve three interdependent dimensions simultaneously:

Technical dimension:

In the continuum of the traditional functions of production, each platform taken individually must behave as expected and provide the anticipated performance, availability and security levels for the end users.

Practical dimension:

To be used efficiently and in optimal fashion, infrastructure services must be presented to their users (developers, data scientists, etc.) in an attractive form, their underlying complexity must be concealed, and they must be developed apace with their needs.

Strategic dimension:

It is necessary to bear in mind the three main challenges of IT at the time of the digital transformation – value creation, cost reduction and intangible asset control – and to make sure that the infrastructure contributes directly and concretely to that end.

To manage a heterogeneous infrastructure, the ISD must therefore rise to the occasion without losing sight of the more fundamental layers. To promote data and application interoperability and develop sophisticated and relevant business services, it has to address the three technical, practical and strategic dimensions in a coherent manner. But to do that, it needs new tools and new indicators which will enable it to gauge the different levels of granularity and manage its global service offer in a dynamic manner.

Infrastructure Management Platform is the key

The development of hybrid and multi-cloud models has led to tools that can be used to unify and centralize the management of those models: the Cloud Management Platforms (CMP). These solutions provide first and foremost the visibility and clarity that are indispensable for managing the complexity of heterogeneous environments.

Most of these solutions do not offer the possibility of managing legacy environments from the same console, although such environments are an integral part of the scope.

CMPs are nonetheless destined to turn into Infrastructure Management Platforms (IMP), which will offer the same features while being capable of taking the legacy into account.

90 %

of companies will acquire the necessary means and resources to manage hybrid infrastructures by 2020, according to Gartner.

By relying on specific management tools for different environments, a CMP (and tomorrow, an IMP) necessarily contains the following elements:

Portal

Dusting the interfaces of traditional systems and unifying those of the different cloud providers, the portal offers a centralized console for administrators and a unique and personalized homepage for users, from which they can activate, deactivate and follow their services in the way of an e-commerce website.

Service catalogue

It lists and presents all the resources provided by the platform through its different environments, either in unitary form (VM, storage, network, standard development environment, basic workstation, etc.), or, with increasing frequency, in packages for a business-oriented private use (an environment configured for the requirements of data science, a complete sales rep station with office automation, CRM, BI, etc.). A search engine enables users to discover the services that correspond to their needs.

Cloud orchestration and brokerage

Although they offer advantages of the same nature, the services provided by various public cloud operators at times have significant differences, in terms of cost, SLA, contractual conditions, ease of use etc. It is therefore necessary to be able to juggle between the different solutions available, if only not to be beholden to a single supplier.

In order to have the right environment, at the right time, on the right platform, the selected system allocates, provides, orchestrates and ensures reporting on the services subscribed from different cloud providers. According to the policies defined by the company, it may act automatically or require human validation, where necessary by making recommendations. This brokerage must ultimately be invisible for the users to whom the services have to be presented in a homogeneous manner independent of their origin.

Automation

The key to the efficacy of a heterogeneous environment and its benefits lies in the capacity to automate a maximum of tasks and optimization policies. This automation may be considered along two lines. The first lies in the more or less extensive packaging of services. The capacity to integrate a set of complex tasks (security, network, etc.) makes it possible to offer all-in services, well adapted and immediately available, which leads to sizeable productivity gains for them and/or IT. Once all the resources are connected, available and supervised, the second line of automation will consist of programming dictated operating rules: provisioning of additional VMs as soon as the load exceeds a certain threshold, switch over to a less costly environment outside peak hours, switching off systems at night, differentiation of backup modes depending on whether the data are hot, warm or cold, etc.

Policy management

Between the purely technical constraints, rules for use and business process optimization, contracts and terms of service of suppliers, and regulatory requirements, the infrastructure is governed by a complex web of policies which may moreover vary depending on the user profile. The CMP (or IMP) must enable persons authorized to implement, monitor, assess and check these rules and their application.

Management of regulations and compliance

With the emergence of laws and regulations such as the GDPR in Europe or the Cloud Act in the United States, companies must make increasingly sure that their processing complies with them. They therefore become accountable to the authorities and their users for the location, appropriate security and auditability of their platforms and their data. In order to avoid stiff penalties, the CMP must be capable of integrating these requirements (and to monitor their rapid development) so as to ensure that all the rules are observed and to be able to prove it.

People management

Administrator, developer, business user -- very many people have to connect to the infrastructure, its tools and services, with specific powers and privileges for each of them. It is therefore necessary to manage the roles, rights and identities very strictly so that each user has access only to the authorized resources and features.

Security

Security is a major concern of course, all the more so in these increasingly elusive virtualized and dynamic environments. In addition to the issue of access and rights of persons, security must be considered on two levels: first, in a rather conventional manner, at the level of various individual resources, and secondly, which is newer, at the level of services. At stake is to ensure their confidentiality integrity, availability and traceability (CIAT) from end to end whereas they consist of technical links of different origins which are moreover likely to change. Tools such as Cloud Security Access Broker (CSAB) provide part of the answer.

Monitoring

The platform must offer a monitoring system so that it can be managed at its different levels of granularity: It is also necessary to be able alerted if a VM overloads or if, thanks to the IoT, a component is overheated, as well as to monitor the rate of use of a service or know the SLA of a cloud provider.

Management must increasingly consider performance from the user's point of view, as experienced on the other side of the screen, and not only from the technical perspective. For example, a user may have a very bad experience with an application simply because of a poor Wi-Fi connection, although all the operating indicators of the underlining components had been flawless. As regards application services in particular, it is necessary to try to have visibility – and a capacity for intervention – from end to end.

Resource-oriented (response time, rate of use, population, etc.) or business line-oriented (types of use, user experience, etc.), the KPIs will also feed the automated services and, potentially, the analysis tools, which will make it possible to optimize the infrastructure.

Financial and contractual management

The platform must make it possible to monitor closely the consumption of services, the invoicing of the different suppliers and compliance with their commitments. This makes it possible to optimize consumption financially (RightScale assesses the amount of useless expenses in the cloud at 35%) but also to relate it to the business service rendered. Ideally, the CMP/IMP makes it possible to compare the cost of an application / service to the business benefits obtained, and therefore to attune trade-offs in a Business Service Management (BSM) rationale.

90%

of expenses in the cloud are wasted and could be avoided through a rigorous management of the services consumed

RightScale 2018, State of the Cloud Report™, February 2018.

The Cloud / Infrastructure Management Platform

For all IT users (business lines, developers, administrators, etc.) the CMP/IMP is both a gateway to the services offered and the machine that ensures that these services are compliant, controlled and efficient.

Administrator	Business users	Developers

CMP / IMP

Portal

People management

Supervision	Packaged business services	Development services

Cloud orchestration & brokerage

Automation

Policy management

Compliance management

Security

Monitoring

Financial and contractual management

Infrastructure resources

Ingredients of success

An indispensable control tower, the CMP (or IMP) does not suffice in and of itself for the infrastructure to meet all the challenges of the digital company. It is the instrument of the effective and controlled implementation of new architectures, but does not address all the business and technical questions. A certain number of technical, organizational and human ingredients have to be added to that end so as to make the most of what a heterogeneous environment has to offer:

An updated urbanization plan

Upstream from the policies that will be implemented in the CMP, the ISD must update its urbanization plan to include the public cloud and the conditions of use of new infrastructure services: data strategy and differentiation of use according to their sensitivity, strategy and management of the APIs and Docker containers, ...

Industrialized migration processes

Although the infrastructure accepts a legacy part, the aim is nonetheless still to provide all the benefits of the cloud to eligible applications. There will be many migrations therefore and it is necessary to implement appropriate processes and tools, if necessary through a specialized partner, to accelerate and secure each project. Particular attention will be paid to automate a maximum of tasks by capitalizing as the projects progress. Migrants from cloud to cloud (private to public, public to private, etc.) must not be neglected either, as they are far from trivial.

Agile development

Placed at the disposal of developers, infrastructure services must enhance and not impede their work. Customization, ergonomics, recommendations and, in certain cases, the obligations of the catalogue of services must help them implement rapidly the solution that meets their needs in optimal fashion. To that end, the infrastructure development strategy must engage in dialogue with the development strategy (agile, DevOps and continuous integration, up to continuous deployment) to support and equip it.

Where do the companies stand in the implementation of DevOps?

Implemented	**13 %**
Under deployment	**50 %**
Planned for implementation in the course of the next 12 months	**27 %**
Interested but no plan in the short term (less than 12 months)	**9 %**
Not interested	**1 %**
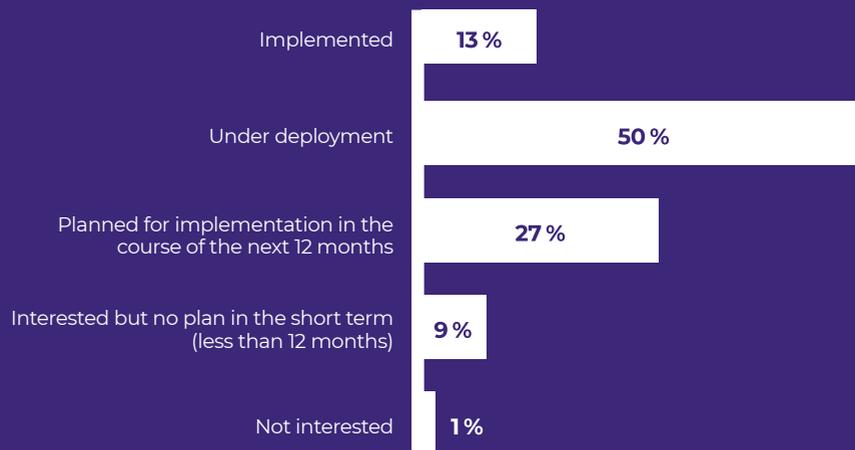
Source: Forrester Research, January 2017.

Secured hosting

Data and processing may very well be "in the cloud," but they are physically somewhere, and that location is far from being insignificant. Even today, it is one of the major concerns of companies for reasons of conformity, confidentiality and sovereignty. Nevertheless, all the data centres situated in France or elsewhere in Europe do not offer the same level of physical and logical security. Depending on the nature, criticality and sensitivity of the resources, we will have the possibility of choosing between different standards

(ISO 27001, SecNumCloud of the ANSSI...), up to Restrictive Regime Zone (RRZ) level established to protect the technical and scientific potential of the nation.

Continuity, recovery and reversibility plans

The more the activity of companies is digitized, the more costly the interruption of service becomes. Activity continuity and activity recovery plans (ACP and ARP respectively) are therefore drawn up to prepare the reaction to any operation incident. A reversibility plan which organizes the termination of a contract with a cloud provider and the recovery of the data he hosted can now be added to these classic measures. In the banking sector, providing for such an eventuality is even a regulatory obligation.

Predictive maintenance

The first link of the performance of any infrastructure remains the reliability of its constituent equipment. By maximizing the operational availability while rationalizing the interventions, predictive maintenance appears to be the ideal approach to guarantee the operational excellence of heterogeneous and complex infrastructures while keeping costs under control.

Enhancement of expertise

The heterogeneous infrastructure of the future is also a decompartmentalized and integrated infrastructure under constant development, which will no longer be segmented by technologies. New complex objects (application services, platforms, APIs) will appear which will have to be administered by focusing on the service rendered to users first and foremost. For production equipment this represents profound developments in terms of role and culture as well as expertise and equipment. Being able to analyse the indicators supplied by the CMP, and then to develop automation scripts based on these lessons, will consequently require experience and new skills. It is a critical change that will require support in the ISD.

These various components round the CMP make it possible not to suffer from heterogeneity but on the contrary to harness it so as to capitalize on what it has to offer and the specific assets of each environment.

03

An integrated transfor-mation

and operation strategy

Build & run, hand in hand

In the face of the pressing demands from the business lines, IT cannot afford to freeze services during the time it takes to take a new look at all the platforms and infrastructure. As in the case of application maintenance, where build and run go hand in hand, it is necessary to manage to produce and transform at same time.

It will therefore be necessary to implement an integrated and progressive transformation strategy guided by the business needs but with due account of the operational requirements.

Here are the key points of this transformation plan:

Assess the eligibility of legacy applications for the cloud

To define the scope of the transformation, it is necessary to determine the extent to which it is possible – and desirable – to migrate the existing applications to a public or private cloud environment. Will it be necessary to redesign the architecture? Can we be content with containerizing them ("lift & shift" approach)?

In addition to the technical feasibility of the operation, a business plan has to be devised for the medium term: what are the prospects of the application in terms of the number of users, volumes of transactions and data? How will the operating costs in the cloud develop in such a case? How and at what price will it be maintained?

Define the target model

Once the assets have been assessed, the preferential platforms are defined for the various applications depending on their nature, criticality, data handled, requirements in terms of regulations (such as the GDPR) and certification (SAP, for example), skills and scope of the project.

This model must be established in conjunction with the business lines, so as to meet their needs but also so that they can understand the constraints involved. For example, an application in the public cloud will of course be open-ended but within stricter limits than before. The main lines of the urbanization plan are set out.

Choose your pace

Advancing in an ambitious and determined manner does not mean rushing, no more than the term heterogeneous means dispersed or chaotic. The most important thing is to retain control of the systems so as not to expose the company to ill-considered risks. It is therefore better to proceed a little slower perhaps but to stay the course and meet the deadlines of the road map.

This road map will take account in particular of the priorities of the business lines, the skills and resources available, and the speed and visibility of the expected benefits, which are decisive to support the transformation momentum. Proceeding in successive steps makes it possible to spread out the budgets and mobilize fewer resources; conversely, it will ultimately be more costly in the end, with the risk of creating silos and blind spots.

Test, compare and implement pilot projects

The incomparable flexibility of the cloud makes it an ideal tool for experimenting. Production can benefit from it by adopting more agile and pragmatic approaches in turn. Before choosing, then generalizing infrastructure solutions, they should be tried and tested under real conditions, and suppliers should be challenged, etc. so as to gain experience and maturity and to determine which services are best suited for the projects.

Do not get bogged down

The usual rules of prudence regarding the risk of commercial and technological dependence must be applied with cloud providers, all the more so as freedom, flexibility and agility are among the main objectives. It is necessary to implement a reversibility plan so as to be able to withdraw in a rapid and orderly manner and be attentive to the supplier's technological road map to retain compatibility and opening.

Prepare the change

The development of the infrastructure will entail major changes at different levels which will require guidance and support. First of all, developers will have to familiarize themselves with the packaged services that will be proposed and, at times, imposed. They will also have to comply with good practices of use, for example deactivate the environments as long as they are no longer in use.

The second major change

Concerns the organization of the ISD which, in this hybrid and heterogeneous model, becomes a provider of services for its internal clients. It will therefore be necessary to manage this offer: define and rationalize it, adapt its technological content, pricing, SLAs, etc. depending on the expectations of users, present it in an attractive and business-oriented way, promote it, etc. .. and briefly, adopt "commercial" posture that can be very different from the traditional technical culture of the ISD.

The third change

will take place at the level of operations to provide services in accordance with cost and quality commitments. The arrival of new, more customer-oriented performance indicators, and new tools particularly for management and automation, may also upset well entrenched habits.

Example of an infrastructure transformation path

A classic approach consists of familiarizing oneself with cloud environments by opting for infrastructure as a service (IAAS), initially reserved to certain precise uses (development, digital applications, etc.). In a second stage, the legacy administration is integrated in a single Infrastructure Management Platform, so as to have global visibility of the systems. Finally, the resources are packaged in the form of services for developers.

IAAS
on a limited scope (new developments, digital applications, etc.)

Legacy integration
The Cloud Management Platform becomes Infrastructure Management Platform

Packaged services
The developers use application and/or business bricks regardless of the underlying systems
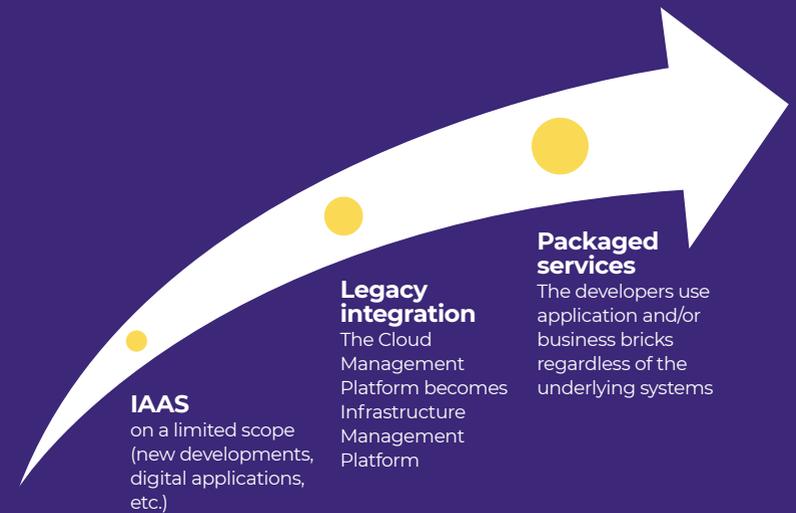
conclusion

As the cloud reaches maturity under its different forms, companies have an unprecedent choice for their IT infrastructure. This extensive choice gives the ISD means and resources to play a leadership role in the digital transformation by enabling it to respond simultaneously to these three major challenges: create value, reduce costs and inspire confidence in the intangible assets of the company. The need to protect investments and capitalize on the expertise of the organization does not doom the legacy fully, just as standardization requirements and hidden costs do not necessarily plead in favour of the public cloud. Each model has its virtues and it is up to the company to devise and deploy its own hybrid, multi-cloud strategy, according to its specific features, if necessary with the right measure of legacy.

Because it is customized and open-ended, this heterogeneity is an asset, on condition however of not being synonymous with dispersal and incoherence. Whereas the deployment of collaborative tools such as Office 365 or G suite on a large scale attests to a massive and irreversible shift to the cloud, these projects, by their scope, also show the need to bring all dimensions under control. For the ISD, the transformation path will be that of control and optimization.
Around the indispensable Cloud/ Infrastructure Management Platform, the control tower of the administration, it will be necessary to adjust gradually its organization, skills, equipment, practices and stance with regard to customers to be able to devise, manage and operate these new integrated and business-oriented infrastructure services. For users of these elementary bricks, technology gives place, complexity disappears, security and performance are self-evident. But for the IT teams, arrive at such appearance of simplicity is undoubtedly a vaunting challenge of their expertise.

Any question? Please do not hesitate to contact us at marketing.be@econocom.com
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