



The cloud
for Switzerland
2013



“The many enriching moments with people, technology’s almost unlimited possibilities, and the focus on inspiring customer service and quality. Variety makes our company stand out from the rest, gives me fresh motivation every day and makes me proud to be part of Swisscom.

Our mission is to simplify the lives of our customers in the digital world. Our aim is for every customer to perceive Swisscom as trustworthy, simple and inspiring, at all times and everywhere.”

Urs Schaeppi, CEO Swisscom Ltd



The limitless world of the cloud

Dear readers

When clouds gather in the sky, it is usually not a good sign – especially when they are dark and storms threaten. The opposite, though, is true of Swisscom and one of our central, strategic topics. In the field of information and communications technology, the cloud is a limitless world, one in which new ways of communicating are possible.

The cloud exemplifies the increasingly digital nature of our personal lives and the convergence of IT and telecommunications, which offers new opportunities for growth in an ever more global market.

We take it almost for granted nowadays that we live our personal and professional lives in the virtual world as well as the real one. We want to be able to

access our private and social data from any location and at any time, using any device.

At Swisscom, we are in global competition with companies that can now offer their IT and telecommunications services worldwide on the basis of the Internet Protocol (IP).

Future-oriented strategy ...

Our strategy takes these developments into account: we want to offer our customers the best network, so that they can have secure access to their data from all locations. But we do not just want to operate the best network; we also want to offer our customers the best-possible experience with our products and services, so that we can survive in this competitive

global environment. The Internet Protocol and the convergence of IT and telecommunications is enabling us to launch new products in the value chain and therefore to grow in a sustainable way.

... requires long-term investment

Our customers' requirements to have online access at all times and in all locations, and the increasing levels of machine-to-machine communication (the "Internet of Things"), make the very latest infrastructure a necessity. In order to offer our customers networks and services with the best-possible availability, quality and security, Swisscom invests large sums each year in the infrastructure of the future – we invested CHF 1.7 billion in Switzerland in 2013 alone.

We are investing in both fibre-optic expansion and mobile expansion: by the end of 2013, 750,000 residences and businesses had been connected with Fibre To The Home (FTTH). These customers can surf the web at speeds of up to 1 gigabit per second. In addition, new fibre optic technologies have been piloted, such as fibre optic cables laid in homes or a short distance in front of them. Vectoring technology should also double the performance of the existing network. In mobile expansion, Swisscom became the first mobile provider in Switzerland to launch fourth-generation LTE technology on a commercial basis. By the end

“Cloud computing offers economic benefits, speed, adaptability and flexibility.”

of 2013, Swisscom had already supplied 85% of the population with 4G/LTE. Around a million Swisscom customers are now regularly using the new, fast LTE network.

One million Swisscom TV customers

The technology also offers new possibilities in TV and creates opportunities for even better entertainment. Our television viewing habits are changing as a result. Thanks to Replay TV, we no longer organise our days around the TV schedule, but can decide for ourselves what we want to watch and when. Some one million customers are subscribers to Swisscom TV and 410,000 use Replay TV.

Ever-increasing convergence between IT and telecommunications

We find ourselves in a process of continuous transformation, in which IT and telecommunications are moving ever closer together. We are aligning the company with this trend. This development also allows for the new focus in the business customer segment: by merging the segments "Corporate Business Swisscom Switzerland" and "Swisscom IT Services", we have created the conditions to manage our business customers from a single source and to offer personalised solutions that are tailored to their needs.

“As a trustworthy companion in a digital world, we not only provide a good network and good products and services, but also support Swiss people in handling these new media.”

New growth opportunities ...

One of Swisscom's growth areas is the cloud and associated applications – currently known as “Flexible IT”. Cloud computing offers economic benefits, speed, adaptability and flexibility. The IT industry is also currently undergoing a fundamental process of change: companies are outsourcing some of their IT services to the Internet – to the cloud.

... and using these responsibly

Swisscom's corporate strategy is designed for the long term and for sustainability: we take our environmental, social and economic responsibilities seriously. How might that look in cloud computing? Clouds need new data centres, such as the one currently being built in Berne Wankdorf, which is groundbreaking in terms of its energy efficiency, technology, waste heat recovery and operating safety.

As a trustworthy companion in a digital world, we not only provide a good network and good products and services, but also support Swiss people in using these new media. And by investing in the broadband network, developing technology and building the cloud, we are making a major contribution to the competitiveness of Switzerland as a business location.

The cloud for Switzerland

Swisscom is building the cloud for Switzerland. But what do we mean by a “cloud”, what applications are we already using as standard and how will this forward-looking topic develop? As a trustworthy partner, Swisscom stores customer data in Switzerland. Security and data protection are of central importance in this project. In this brochure you can find out more about cloud computing and our vision for the digital safe for Switzerland.

Happy reading.



Hansueli Loosli
Chairman of the Board of Directors
Swisscom Ltd



Urs Schaeppi
CEO of Swisscom Ltd



The cloud strategy

Tomorrow is already here

Swisscom is constructing the biggest state-of-the-art cloud in Switzerland and has the potential to join the ranks of the world's 20 biggest cloud providers.

The world is currently undergoing a technical revolution as the digitalisation of all data has transformed the domestic market for telephone services and text messaging into one of global proportions. Transmission is no longer key – but capacity. And it is constantly growing. Swisscom is consequently focusing on using the technological revolution as the basis upon which to derive an economic evolution for its customers. We rely on having qualified and committed employees, a customised product portfolio, a high-performance, secure and nationwide ICT infrastructure, as well as on embracing our responsibilities towards the environment and society.

We are building the Swiss cloud. Our nationwide data traffic, whether private or business, should remain in Switzerland. This is because it is important for our customers to have confidence in their cloud provider. Their main concerns are: where are my data and who can guarantee that my data are and will remain in Switzerland? This puts Swisscom in a strong starting position.

We offer our business customers modern, flexible services, such as Platform as a Service or Infrastructure as a Service, and we will also provision hybrid solutions that enable them to operate their own data centres in the cloud and perhaps seek to grow into the cloud over the medium term. The benefits of our strategy are thus twofold for our business customers: they gain a competitive advantage in a changing world, while being able to focus more on sustainable management. At the same time, we are concentrating on the end consumer, because, at the end of the day, our basic mandate is to deliver Swiss services to the end consumer.

The requirements that companies have to meet in terms of IT capacity, availability and data security are forever on the increase. New concepts such as dynamic computing make it possible for them to respond more flexibly, while security requirements make it advisable for them to process and store their data in Switzerland. Swisscom satisfies these requirements in full with its new data centre in Berne Wankdorf and cutting-edge data centre in Zollikofen as well as other locations in Switzerland.



“Swisscom’s current activities place us at the forefront of cloud development.”

Gunther Thiel, Head of Cloud Products & Technology

The cloud explained

More than just a world of servers

Storage capacity, processing power, software and services are all relocating to the cloud. As a result, information technology is losing its physical presence and will soon become something that we can no longer see. All the same, IT will still exist in everything we do and everywhere we go.

Cloud computing is a new way in which to use IT, and an increasing number of companies are getting involved by outsourcing parts of their IT systems on the Internet – for example, storage space, computing capacity, software, the entire telephone system, and other services on request. This means that the actual processing takes place in the data centres of the cloud-computing providers – on their servers. In its role as a provider, Swisscom therefore also takes on storage and computing capacities and distributes these optimally throughout its network of data centres. Cloud customers, on the other hand, only need a terminal device with as fast an Internet connection as possible in order to be able to access their data and capacities stored in the data centre. This form of IT allows a company's employees to work in any location – within the company offices, while on the go, from home or at customer premises.

Flexible, secure, available

An array of almost unlimited resources is at hand thanks to the cloud. Should demand change, companies can adjust their capacities immediately or purchase new services. In this way, companies are able to react quickly and appropriately, without having to invest in software, servers, computing capacity and memory. At the same time, protection against outages is also increased, as Swisscom uses the latest technology to store content at multiple locations. Customers also don't have to worry about maintaining the cloud applications. Each individual computer and network computer does not have to be kept at the state of the art – Swisscom is responsible for updating and maintaining the systems. Using resources when you need them also pays off financially, as a cloud customer is only charged for the services that they actually use.

Where did the cloud come from?

Just a few decades ago, computers filled entire rooms. Nowadays, the same processing power can be found in practically every smartphone. Digital storage media have also developed at a similarly rapid pace, evolving from punchcards to hard drives and floppy disks, all the way to Internet access. This is due to data now being increasingly stored in external data centres which we are able to access from any



location via the Internet. Our data are now stored in the cloud. In the 1990s, computer experts used the term “the cloud” to refer to the outside world. Their PCs took centre stage, while the rest of the world, with which they were connected by Internet and could contact when necessary, was hidden behind the cloud. The term later represented networks in which multiple users supplied each other with computing capacity that was not being used and were thus able to complete complex tasks more efficiently. Finally, over the past ten years, the cloud has referred to software created by companies that is able to run across several servers.

Trust is good, but what about control?

In many homes around the world, the cloud is increasingly replacing our family photo albums, mailboxes, CD collections and bookshelves without any of us giving the idea a moment’s thought – or even, how, where and with whom the data are stored. The cloud is now also progressively making its way into many companies’ operations. When weighing up the advantages, companies have to carefully consider for which purpose they would like to use the cloud and which provider they are going to choose, as IT security, data availability and data protection are business-critical issues for every company looking to move to the cloud. Anyone wanting to use cloud services should therefore clarify various issues. In terms of infrastructure, the following questions need to be asked: How secure is the building in which the computers are housed? Is the building equipped with a video surveillance system? How are access controls implemented? Another important issue that requires clarification is the way in which data are stored in the cloud: are backup data saved in encrypted form? Furthermore, the following questions are just some of those that need to be considered as regards use of the cloud: Are meetings recorded? And if so, how? Are messages transmitted in encrypted form? Who may access which data, when and how?

Cloud systems are complex and comprise a host of components and services at different levels. All of the security aspects that have to be taken into consideration are thus correspondingly multi-faceted. In many cases, using cloud services may therefore even increase security.

X as a Service

In cloud computing, resources are all offered and consumed “... as a Service” from the cloud.

Infrastructure as a Service – IaaS

Users rent IT resources as and when needed, i.e. servers, memory and network computing capacity, and are charged according to use. You only pay for what you use.

Platform as a Service – PaaS

Users rent IT environments in the cloud and use these as a platform on which they develop, test and host software applications. To do this, they use pre-designed modules. This is a particularly interesting service for IT developers.

Software as a Service – SaaS

This service allows users to use software without having to buy it or pay for licence fees. The software runs on servers in the cloud, to which the users connect via the Internet. The user is charged according to use.

Contracts as diverse as needed

Service Level Agreements (SLA)

These agreements define the nature and scope of a service offering between a provider and a customer. Cloud services must be able to offer the same level of availability and performance as locally installed applications.

The difference is in the cloud

In cloud computing, services can be procured from various types of clouds.

Private Cloud

Private clouds are not public; a company or organisation operates the cloud in their own data centre. Access is limited to authorised persons, for example business partners, customers and suppliers. Private clouds are considered the most secure type of cloud, because the operator has full control over the IT-operating environment.

Hybrid Cloud

A hybrid cloud combines traditional IT with private and public clouds. In this type of cloud, the operator retains overall responsibility, but shares the responsibility for the individual IT elements. Secure access to the private cloud is ensured via a Virtual Private Network, while the public cloud is accessed via the Internet and the user’s web browser.

Public Cloud

An external service provider supplies IT resources via the Internet, which results in multiple customers sharing the same infrastructure. All data and applications are stored physically on the same computers, but are separated logically. Users of services for public clouds do not have to purchase hardware, software or supporting infrastructure, as these are supplied and managed by the provider.





Air Zermatt

Rescue from the clouds

It's a weekend with blue skies – mountaineers and winter sports enthusiasts are following the call of the mountains. And if they get into difficulties, Air Zermatt's rescuers in red will respond to their calls for help. Before flying on a search and rescue mission, the pilot needs some important flight information – updated flight plans, weather maps and all the necessary details from the emergency call centre. And he needs this information fast, because time is of the essence. Always. He downloads the data to his PC – a stable network, high-availability servers and intuitive mode of operation are indispensable. For many years Air Zermatt used a paper-based system which was time consuming and difficult. Today everything works electronically – in the cloud.

Chronology of an Air Zermatt search and rescue mission



A skier has ventured off the designated ski slope and wandered into impassable terrain. He has also broken his foot in a fall and cannot walk. He calls the 144 emergency number of the search and rescue services in Siders in the canton of Valais (KWRO). They immediately notify Air Zermatt's command centre and provide them with all the necessary information about the accident victim and the circumstances.



13.27

Call goes into the emergency rescue dispatcher

The call goes into the command centre with the order to mobilise for a search and rescue mission. The dispatcher pinpoints the skier via GPS and confirms the rescue by helicopter.



13.29

Air Zermatt helicopter search and rescue team given the go-ahead

The pilot starts up the helicopter, checks the coordinates he has been given and takes off accompanied by an emergency physician and a paramedic. As the skier has to be rescued from impassable terrain, a rescue expert from the local rescue station is involved.



13.37

Pickup of expert from the local rescue station

The rescue expert is picked up en route, and the mountain rescuer and emergency physician are roped up and secured, ready to be lowered by the paramedic, who is operating the winch.



13.45

Back in the air and on the way to their search and rescue mission

Working with the coordinates he has been given, the pilot can fly directly to the place from which the skier made the call and rapidly locate him.



13.50

Arrival at the scene

As the terrain makes a helicopter landing impossible, the emergency physician and mountain guide are abseiled from the helicopter via winch by the paramedic at the precise location. The paramedic coordinates the pilot and the deployment of the winch as the skier is located directly underneath the helicopter.



13.55

First aid and rescue

While the emergency physician and mountain guide are administering first aid to the skier, the helicopter pilot searches for a place to make an intermediate landing. The search and rescue team on the ground are in constant radio contact with the helicopter and keep the crew informed of the mission status.



14.15

Evacuation

The pilot is notified once the emergency physician has finished administering first aid and the skier has been packed in a vacuum mattress. He approaches with the helicopter, and the emergency physician and skier are hoisted up to the helicopter. The mountain guide is the last to be recovered using an additional winch.



14.45

Arrival at hospital

The helicopter arrives at the hospital in Visp, and the emergency physician hands over the skier to the accident and emergency team. Return to the Air Zermatt base.



15.25

Air Zermatt base

The helicopter lands and gets ready for its next mission. The helicopter is checked and loaded up again with medical equipment.

But the day is not yet over for the Air Zermatt crew, who by the end of their shift will have flown 21 search and rescue missions. Every year 46,000 people have winter sports accidents in Switzerland, which is twice the number of those involved in road accidents. This makes fast and meticulously planned rescues more important than ever. Air Zermatt's new infrastructure and technology play a key role in enabling its team to have faster access to all the necessary data and information while in the air.



“Thanks to the cloud we can go back to concentrating on what we do best: flying.”

Gerold Biner, Air Zermatt CEO and pilot

Moving on to new horizons

An increasing amount of IT performance is being shifted to the Internet in order to manage today’s immense data volumes. As market leader, Swisscom offers customised solutions – for SMEs and corporate customers. A look at Air Zermatt.

Secure

Air Zermatt’s backup solution saves several versions of critical business data in order to ensure their recoverability at all times in the event of a loss. The e-mail solution guarantees virus scanners, anti-spam filters and encrypted data transmission, while the data are stored exclusively on servers located in Switzerland. In this way Swiss data protection regulations and security standards for data centres apply.

Reliable

A comprehensive workplace service ensures that all components are installed, updated on an ongoing basis and maintained – from laptops to operating systems to printers –, thereby ensuring that security measures are always state of the art.

Fast

All Air Zermatt’s relevant data are stored either in the cloud or are web based. Any modifications made to a document by an employee are automatically synchronised, which ensures that all employees are always working on the latest document.

Flexible

Air Zermatt increases or reduces the scope of services used, such as processing power and storage space, according to its needs, and can therefore make optimum use of resources and reduce costs.

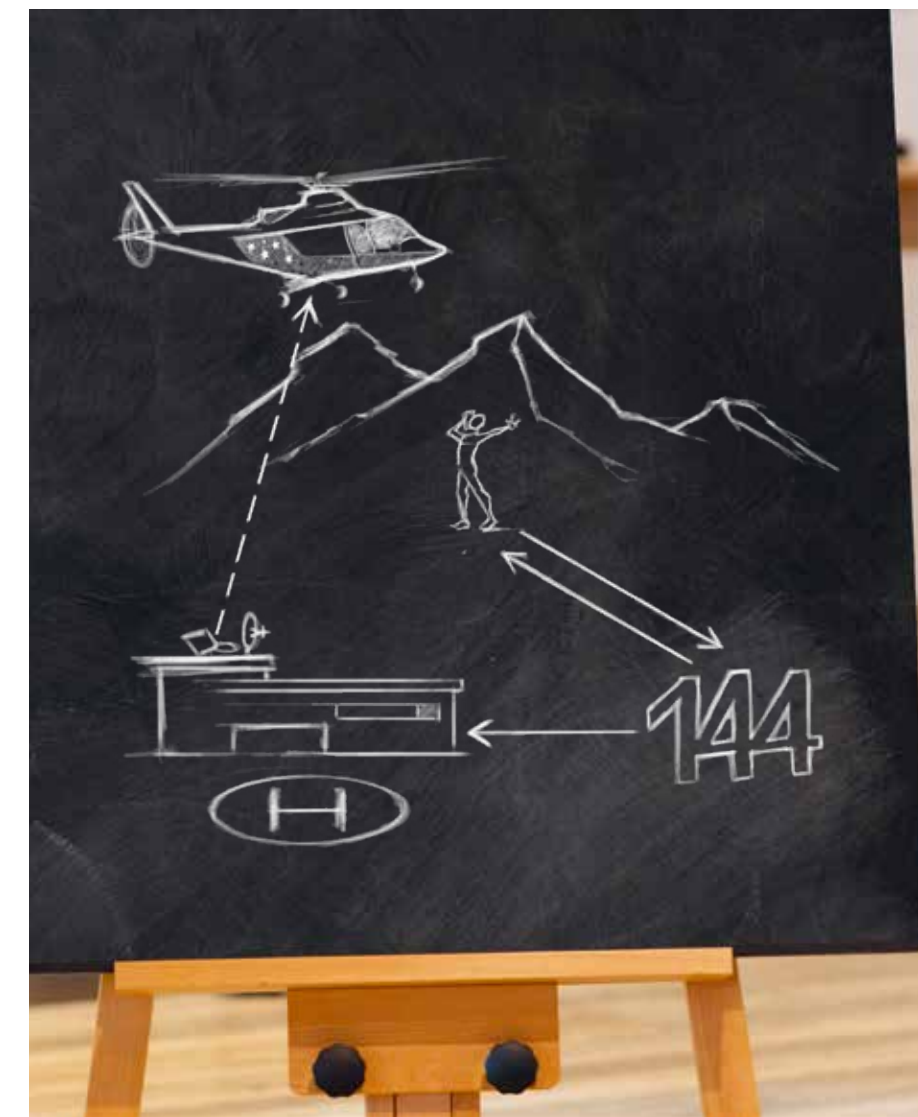
Individual

Air Zermatt works with an ICT total solution: Swisscom guarantees a fast data connection with its network solution and offers a virtual server infrastructure from the cloud in the form of Dynamic Computing Services for Business Applications. Swisscom partner Seabix provides the comprehensive workplace service.

An emergency call made via Voice over IP supplies the location

Voice over IP – VoIP – refers to phone calls made via computer networks. Since 1 November 2013, Swisscom has made it possible for the emergency services to be supplied with a unique location ID of every VoIP emergency call made. In this way, calls can be localised in the central emergency call database, and search and rescue missions can be mobilised fast and with a high degree of accuracy. Even when the time saving is only minor, it can prove crucial as every second counts for a search and rescue mission.

Swisscom has developed this solution in cooperation with Rega (Swiss Air Rescue Service), Directories, the emergency services, other telecom providers and the manufacturers of VoIP products. The Federal Office of Communications has given Swisscom the approval to roll out the solution, thereby enabling Swisscom to make an important contribution to standardising the localisation of emergency calls from IP-based networks throughout Europe.



Filing cabinets and files are migrating to the cloud

Invoices, receipts, salary statements, contracts and tax records are just some of the many documents that are stored physically and electronically in today's various filing systems. Maintaining order and a clear overview can take up a great deal of time and also cause a whole lot of bother. Swisscom has recognised this and is helping to establish a degree of order – thanks to Docsafe.

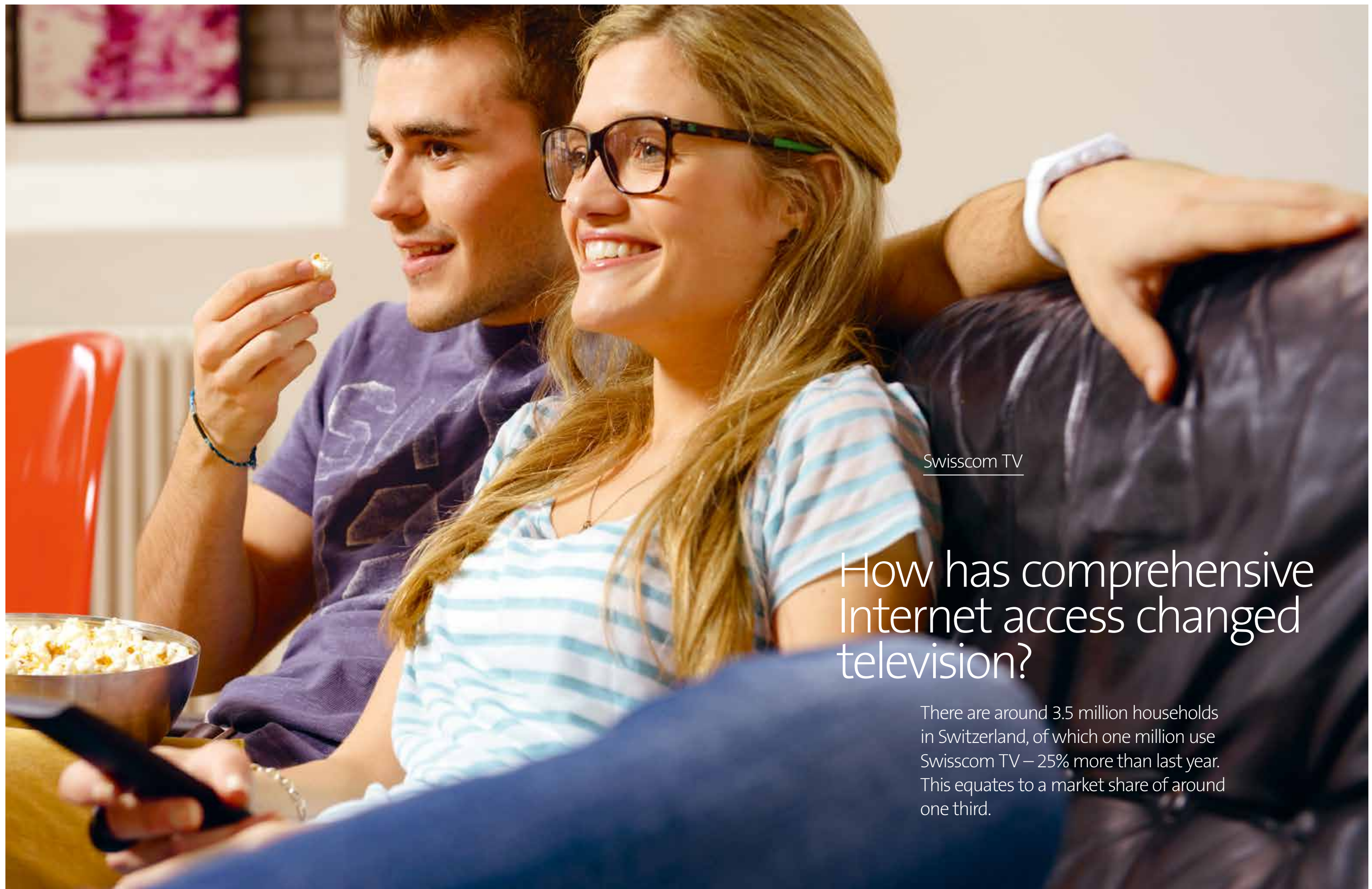
Docsafe is a centralised online filing system in the cloud – a document safe for storing digital files. But how do the documents get there? Swisscom has developed the platform and is now offering it to corporate and residential customers. To answer the question: banks and insurance companies or organisations such as public authorities send their documents here directly, while residential customers have their own Docsafe where they can store their documents. Paper documents, receipts and warranties can also be stored here easily via the app and by using the camera function on a mobile phone. This solution ensures that all documents are stored and managed in a central and secure long-term location and filed in a clear and transparent manner. Using intuitive labelling and search criteria, customers can quickly locate all their documents, and missed deadlines and stacks of paper become a thing of the past.

Protection and backup

Thanks to the Docsafe system, companies sending electronic documents to their customers only communicate via secure connections. Residential customers can also access the Docsafe server using an encrypted link via their browser or the app. What's more, every file on the server is encrypted individually, thus ensuring that only authorised persons can gain access. Multilevel authentication procedures are used to manage access to the server, which involves customers also having to provide verification of their person via an SMS PIN code or Mobile ID. Last but not least, Swisscom saves all the data in more than one location, namely in geographically separate data centres in Switzerland.

“Docsafe is an attractive alternative for SMEs that cannot afford traditional systems, and for large companies that want to reduce the costs for their existing systems.”

Stefan Hopmann, Senior Manager Innovations



Swisscom TV

How has comprehensive Internet access changed television?

There are around 3.5 million households in Switzerland, of which one million use Swisscom TV – 25% more than last year. This equates to a market share of around one third.

“Viewing habits have changed fundamentally over the past few years. Nowadays customers want to decide for themselves when and where they watch programmes that interest them. This trend is made possible by Swisscom’s Replay and mobile television offering. We also offer our customers an unparalleled entertainment selection with a huge choice of top films and Live Sport Events.”

Marc Werner, Manager Residential Customer Business

TV audiences are becoming increasingly dissatisfied with the content and programming of the normal television schedule, and those people who do not want to be dictated as to what shows to watch at what times and on which channels are looking to alternatives. Nowadays, consumers can record TV shows, download films and use the Replay function to watch programmes after they have been broadcast. This range of services can already be obtained from the cloud, which also features two hundred TV channels that can be watched via the Internet, and over 6,000 videos-on-demand in the virtual library, which consumers can view at the touch of a button.

The future is smart

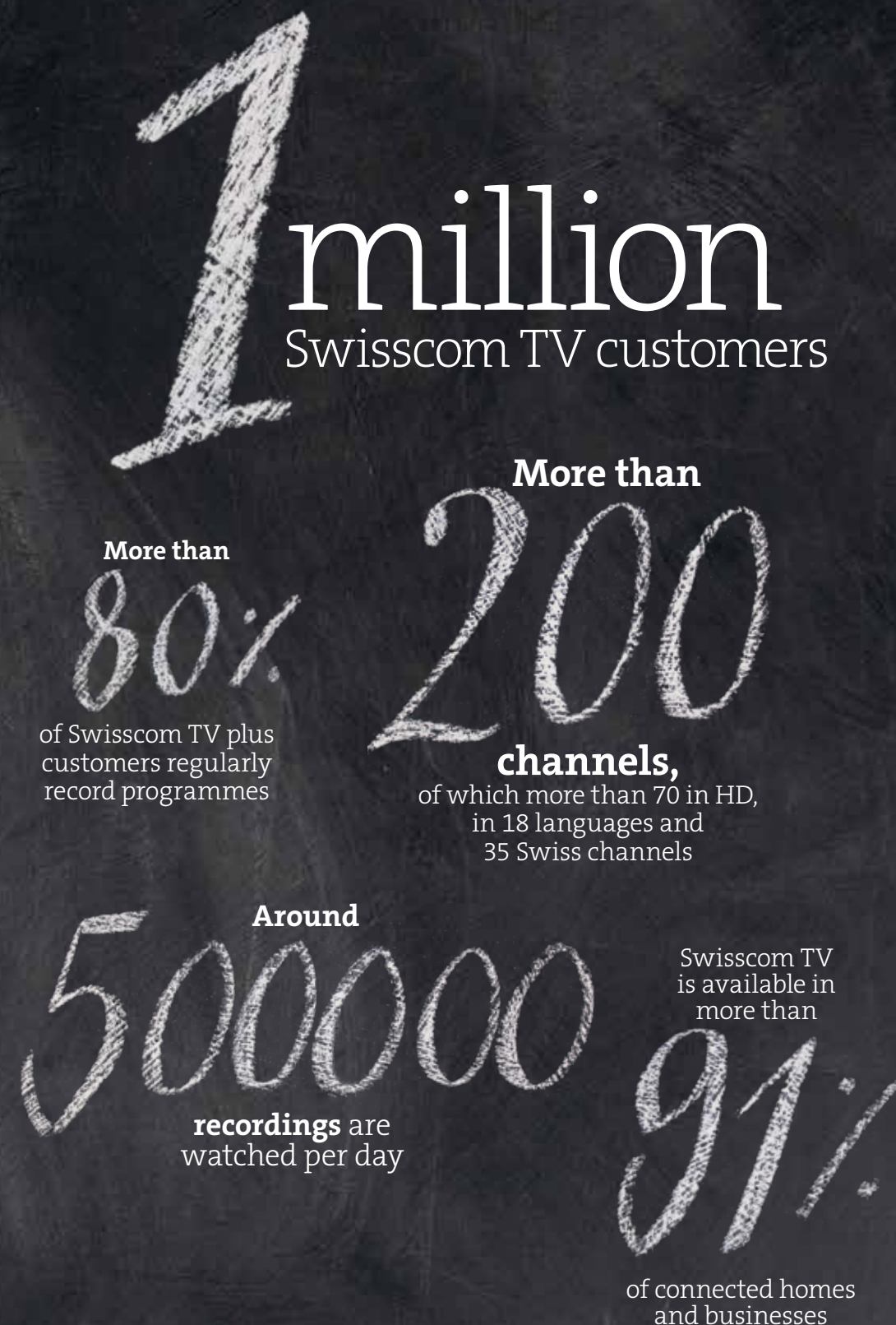
In the future, you will be able to watch television in bed or in the garden, with or without a TV set and cable connection, live or after programmes have been broadcast – a fast Internet connection will allow us to stream HD quality programmes to our devices via Wi-fi and the mobile network. We will be able to read twitter feeds on screen while watching popular shows, recommend films to our friends and even invite them to watch television together, during which you’ll be able to see each other via the picture-in-picture function. Current TV viewing habits involve many users looking at a second screen, i.e. a smartphone or a tablet, while watching television. “Social TV” refers to the practice of watching a pro-

gramme on television while simultaneously looking at online platforms, such as Facebook and Twitter, or apps on a “second screen”. Even if they are only reading online information about the programme they are currently watching, it still counts as “Social TV”.

The offering is growing and growing, and intelligent search functions are becoming increasingly important when choosing the right film to watch. For example, how would you like your TV to be able to identify your favourite programmes and then provide you with recommendations, sorted according to genre and your mood? This data is already available in the cloud – all we have to do is tap into it. Future television will be mobile, fast, intuitive and capable of learning; in short, smart.

Swisscom – clear test winner

In October 2013, the “Kassensturz” programme had the digital TV offerings made available to end customers appraised by three television experts – Tobias Herger from SRG, and Roman Lehmann and Urs Zihlmann from TPC, an ARG production company. Their conclusion was that “Swisscom offers the most persuasive offering, in which functions such as being able to watch programmes after they have been broadcast, live pause and the app for secondary use have been particularly well implemented.” (Source: Programme Kassensturz 10/13)



“The issue of security is currently undergoing a fundamental change.”

Due to the ongoing digitalisation of our society, more and more sensitive data is being generated, stored and transferred using information and communication technology (ICT). Data security is therefore a key concern for Swisscom, one that is gaining importance in both our day-to-day activities and in our development work. For this reason, we created the position of Head of Group Security on 1 November 2013, a role taken on by Roger Halbheer, who will report directly to the CEO. Roger Halbheer will be supported by Gabriela Burkart, the operational data protection officer in our Legal team. She will also be in regular contact with the office of the Federal Data Protection Commissioner. We spoke to Mr Halbheer and Ms Burkart in an interview and asked them about the security concerns relating to cloud services.



What are the most important data protection regulations?

Gabriela Burkart: The purpose of the Federal Data Protection Act (DSG) is to protect the privacy and fundamental rights of people whose data is being processed. The primary aim of data protection is to defend the right of “informational self-determination”, or the right of the individual to privacy concerning his/her personal data. The right of “informational self-determination” is an important basic principle of our social order. This means that each individual should – wherever possible – be able to determine which information concerning his/her person is disclosed when, where and to whom. Data protection should ensure that principles such as legality and proportionality are respected in all cases when processing data.

What does that mean in practice?

G.B.: Only personal data that is absolutely necessary for the fulfilment of the relevant task may be processed. What’s more, the purpose of data processing must be comprehensible to and transparent for the person concerned. Data may not be obtained without the person’s knowledge and must only be used for the purpose defined in advance. This purpose must be stated when the data is obtained, verifiable in the relevant context or legally determined.

What does this mean for Swisscom?

G.B.: Only a limited number of people are granted access to customer data. Specifically, these are the people who need the data to fulfil their tasks. Furthermore, data may only be collected, processed and saved if it is required for the provision of a service, for the processing and maintenance of a customer relationship or for safeguarding operations and infrastructure. The Data Protection Act also requires technical and organisational measures to be put in place to protect personal data against unauthorised processing. The responsibility for ensuring compliance with the data protection regulations lies with the owner of the collected data, that is, the person who determines the purpose and content of a data pool.



Roger Halbheer: At Swisscom, we are continually reducing the number of employees who have access to confidential data. Those employees who work with confidential data know that their movements on the system are monitored constantly to ensure that personal customer data is protected at all times. In 2013, Swisscom further optimised its internal processes and held web-based training courses for all employees.

Is data protection the main concern with regard to the cloud?

G.B.: It is not the only concern. It depends on the kind of data that is to be stored in the cloud. Nevertheless, data protection is a key element in the questions customers and employees ask in relation to cloud services. These are typically questions such as “Where is my data stored?”, “Who can access my data?” and “What happens when data is transferred abroad?”.

So what does happen when data is transferred abroad?

G.B.: The Data Protection Act stipulates that the owner and processor of the collected data is responsible for ensuring that personal data is protected adequately at all times, whether at home or abroad.

Does that apply only to the cloud?

G.B.: No. This obligation relates not only to cloud services, but to all ways in which personal data is stored and processed electronically. However, since many cloud-based services now involve a high degree of virtualisation and location independence, especially those involving “Public Clouds”, the issue of data processing abroad (as laid down in the Data Protection Act) is of particular importance. Aside from the Data Protection Act (DSG), there are other legal regulations relating to different types of stored data, for instance bank and professional secrecy.



The companies of today have to ask themselves: “What is our strength – operating infrastructure at data centres or continually making our products and services more attractive for our customers?”

A growing number of people are taking advantage of cloud services for their mobile devices. Doesn't this trend increase the possible avenues for attack?

R.H.: Every single device, every software component, every piece of hardware and every network that uses the cloud is a potential target for attack. That's why we build our cloud solutions on a firm, well-managed foundation that can cope with a possible failure of individual components. The technical term for this is “defence in depth”. As part of this, we use flexible, dynamic rules and algorithms rather than static rules that can be cracked.

G.B.: In light of automated information systems, telecommunication and other technologies, the effects of unlimited access to personal information have become virulent in our modern information society. As such, the rapidly advancing technological developments which enabled large volumes of data to be processed automatically in the first place proved to be the driving force behind data protection legislation, which therefore (also) turned out to be technology dependent.

What do your customers now expect from you?

G.B.: They expect us to have technical measures in place that will comprehensively protect their data. They also expect our employees to be aware of the issues. They are particularly keen for us to have extensive technical and organisational measures to protect against misuse. These we evaluate constantly and adapt to the technological status quo.

Mobility will increasingly force users to go online from less secure locations, so-called non-trusted zones. How secure will we be in the future?

R.H.: We are setting up what are known as “trusted computing” environments. For example, an employee of a company currently uses a device that has a particular “trust level”. For this, both the version of the device's operating system and what software has been installed are checked. This verification occurs automatically. Once the “trust level” has been determined, the location is assessed. In other words, where is the device located? If it is within a corporate network, the user will have access to certain data and services. If the user then leaves the office and goes online from an unsecured public network, for example, he will have access to far less. The way we are constructing our cloud, all data will be encrypted according to a number of criteria. This data isn't even visible to the cloud provider.

Does the Swisscom security concept protect confidential data against spying and hacker attacks?

R.H.: This is our number one objective, and we are working hard to achieve it. However, is there such a thing as complete security? I'd be lying if I claimed there was. Nevertheless, we can already defend our cloud against extremely complex potential attacks. This is and will remain a tough task, but we have a skilled team that does truly outstanding work for Swisscom and its customers.

What do you mean by “outstanding”?

R.H.: Swisscom is the only telecoms company in Switzerland that is ISO 27001 certified. Some 75 Swisscom employees work exclusively on security issues. Every month, we block up to 300 phishing attacks, discover 20,000 customer computers infected with malware, and process 25,000 complaints about spam and other problems caused by malware. We also notify 1500 customers about malware on their computer and 1200 customers about “stolen” passwords.

More than just data protection

Some 75 Swisscom employees work on security every single day, providing everything from product and service security, network, information, customer and shop security, physical security, occupational health and safety and crisis management to data protection. If you count our customer service and operational staff, some 260 people are involved. In fact, you can add all the other 20,000 Swisscom employees too, because security is in their DNA!



Storebox

Companies rely on security in the cloud

Saving, synchronising and sharing data in real time. Companies of all sizes want to be able to access their concentrated knowledge at all times.

Collaboration works differently nowadays. Employees are working more than ever in teams that are spread across different locations – even in small and medium-sized businesses. Employees also want to be able to use their smartphones, tablets and home PCs to access their files and exchange them with external customers. Traditional solutions are often unsuitable for such types of collaboration, as the standard network approval processes are laborious, even for the simplest of tasks, and FTP servers are too limited for meaningful collaboration. With respect to e-mail attachments, the parties involved must be able to maintain exact control of every file version, and the size of the file that you can attach is limited. Employees therefore often switch to using private accounts in the cloud, as they are familiar with these and use them already.

This is something that should not be taken lightly by companies, otherwise they risk sensitive company data being stored in publicly accessible cloud memories. On the other hand, professional features such as encryption, central user management and server locations in Switzerland are important for company data.

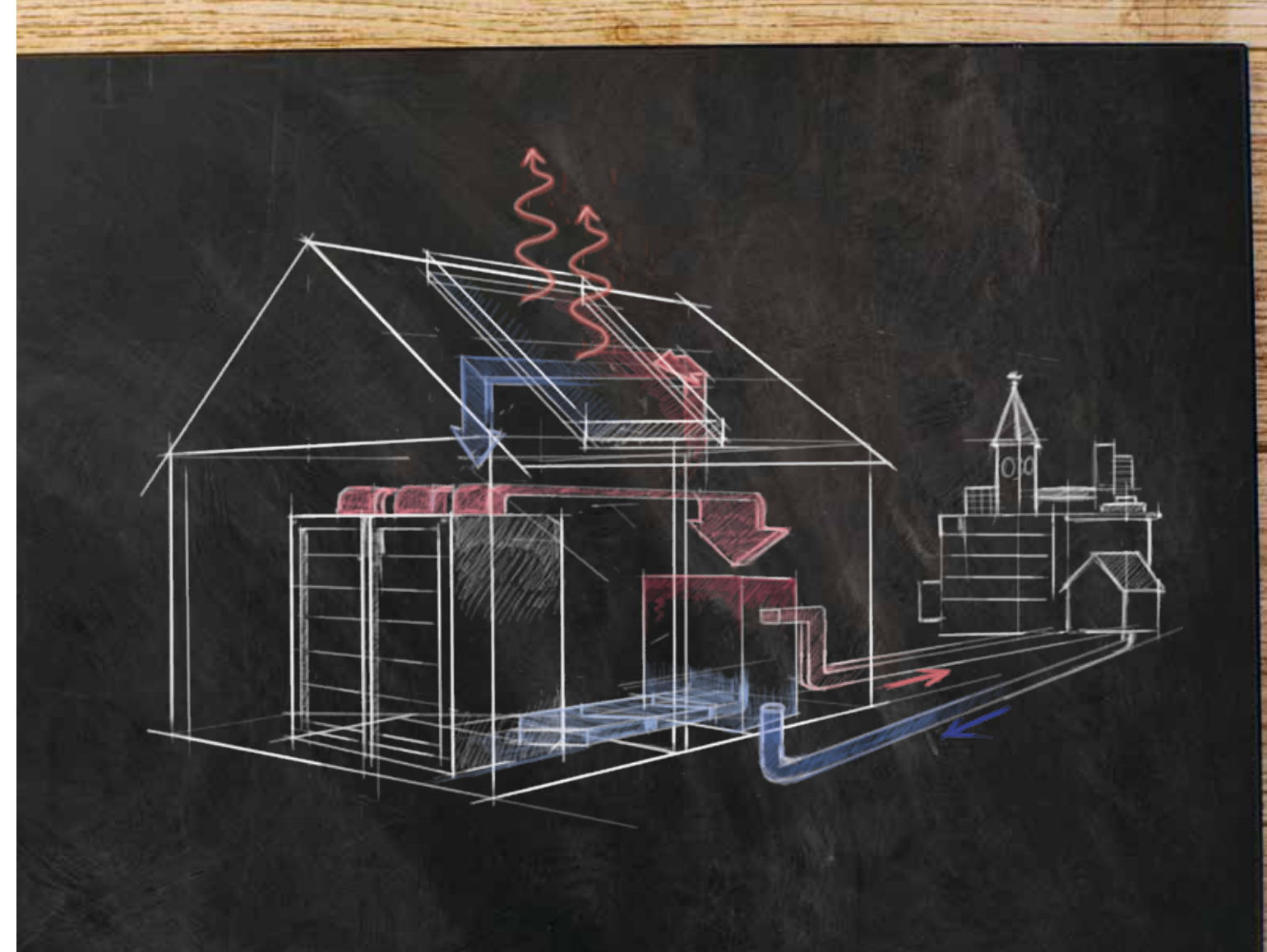
As a result, Swisscom has launched Storebox for corporate customers. This solution allows content to be saved online in a central location, while file and data management is simple and intuitive. Employees can create, share and use files and folders within their respective teams. Users can share files simply by providing a link to the location at which they are saved or by inviting others to share an entire folder containing multiple files. The administration portal is used to manage users and their rights. Data are saved in encrypted form in Swiss data centres – in several different locations simultaneously – and are therefore available at all times. Regardless of their location, employees can access their data flexibly, easily and quickly via the web portal, apps and a range of end devices. This is how collaboration works nowadays.

Driving cloud computing – in a sustainable manner

As a leading 21st-century company, Swisscom does not define success solely in terms of its financial performance. We are also mindful of the environmental, commercial and social consequences of our actions on the world. Today, Swisscom is one of the top-five most sustainable telecoms companies in Europe, and we have set ourselves the goal to be among the frontrunners in terms of corporate responsibility. The most important challenges that we will face in doing so are fourfold – improving work-life balance, ensuring energy efficiency and climate protection, offering equal-opportunity participation in the information and knowledge society, and acting as a socially responsible employer.

The world is undergoing dramatic change in terms of the economy, technology, demographics and the environment – and these changes are happening at an increasingly fast pace. The changes have resulted in information being available at all times and the proliferation of information technology right down to the individual user. The demand for ultra-fast information superhighways is therefore growing – at home, at work and on the move. This means that companies have to be more mindful than ever of conserving resources, implementing sustainable business models, and maintaining security.

Swisscom is setting sustainable standards in this dynamic environment. Our green ICT portfolio allows us to support our customers in their efforts to achieve a sustainable way of working. This portfolio includes Swisscom cloud computing services which are between 20% and 90% more climate friendly than the services operated by customers on their own servers. This saving is a result of the shared use of servers and the increased efficiency of modern data centres. In addition, our suppliers maintain high environmental and social standards – this is a prerequisite for working with us. If you also factor in that Swisscom uses only renewable energies to run its data centres, the reduction is actually 90%. This is because only very few companies currently operate their data centres using renewable energy.



Groundbreaking data centre

The new Swisscom data centre in Berne Wankdorf is a trendsetter in terms of energy efficiency, technology, waste heat recovery and operational security. Instead of conventional cooling units that eat up electricity, the data centre uses outside air as part of an innovative new process. On hot summer days, rainwater collected in a cistern is introduced to the warm flow of air and removes heat from this air through evaporation. The cooled air is then used to control the temperature of the IT systems with a high degree of accuracy. Furthermore, the Wankdorf data centre is integrated into the city of Berne's heating network and can provide heat for neighbouring homes.

The Wankdorf data centre also focuses on sustainability in connection with system availability: in the event of a mains failure, a permanently operating flywheel mass will drive the generator until the diesel units take over this task. These no-break units ensure that servers are supplied with an uninterruptible and efficient power supply. Acid batteries, which nowadays generally safeguard the power supply in the event of a power outage, are no longer used in the new data centre.

Thanks to these measures, the Berne Wankdorf data centre is achieving a top rating in energy usage, which is expressed in terms of Power Usage Effectiveness (PUE). The PUE value compares the amount of energy consumed in the data centre with the amount of energy consumed by the computers, and sets it into proportion. This indicator therefore calculates how efficiently energy is being used. The new Swisscom data centre has achieved a PUE rating of 1.2 – the cooling and power supply systems only consume 20% of the energy required by a computer. By comparison, the average international PUE rating is currently 1.9.

Swisscom has received support for the implementation of the efficiency measures in the new data centre from PUEDA, the development programme for increasing energy efficiency in data centres operated by the Federal Office for Energy.

The future of the cloud – serving local and global needs

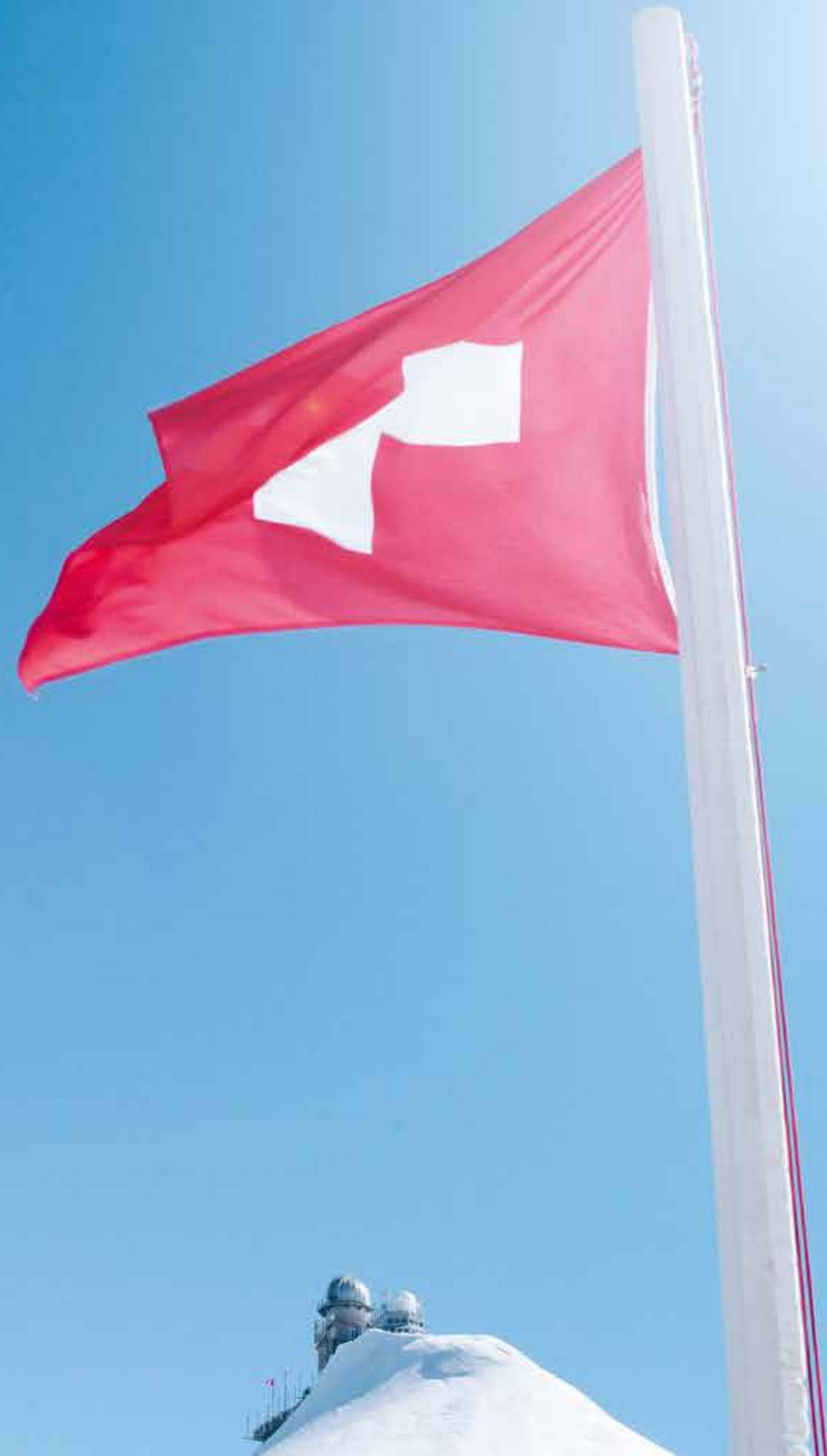
For private users, the Internet is becoming increasingly local. 80% of a user's daily needs and activities involve local people and services: family, friends, work, banking services, grocery shopping, doctors, sports clubs – the entire local ecosystem.

Successful companies want to use their services to cleverly integrate themselves into these local ecosystems, while also operating on a global basis.

In the future, they will be able to achieve this goal. Swisscom is building a “360-degree cloud”, which residential customers will be able to use to store all of their personal data in a digital safe: “my digital life”. Companies are being given the opportunity to develop and embed applications revolving around this “my digital life” concept, such as tax software that extracts data for tax declarations, or health care solutions, with which private users can share their patient data with their GP via the cloud.

The possibilities are endless. Privacy in the cloud, however, is sacrosanct for Swisscom. Each user can determine who is allowed to access their data, all of which is stored in Swiss data centres.

Together with megatrends such as mobility, big data and the “Internet of Things”, the cloud is set to be the catalyst for the fourth industrial revolution. Swisscom is laying the foundations for the digitalisation of the Swiss economy – on both a local and global basis.



Key figures at a glance

The following table shows the development of certain key figures of Swisscom between 2012 and 2013. For a better understanding, a short explanation of the financial key figures is provided below.

In 2013, Swisscom’s net revenue rose by CHF 50 million or 0.4% to CHF 11,434 million, while EBITDA declined by CHF 175 million or 3.9% to CHF 4,302 million. At constant exchange rates and excluding company acquisitions as well as Fastweb’s wholesale revenue from interconnection services (hubbing), revenue fell by 0.8%. This slight decrease was mainly due to price erosion in Swiss core business of around CHF 350 million and reductions in roaming charges of around CHF 210 million. The total fall of around CHF 560 million was largely offset by customer and volume growth of around CHF 480 million.

EBITDA fell by 2.0% on a like-for-like basis, due primarily to the fall in revenue in Swiss core business. Expenses were also higher in Switzerland for network maintenance and IT, while customer growth in Italy led to higher acquisition costs.

Net income declined by 6.6% or CHF 120 million to CHF 1,695 million, which was mainly attributable to lower EBITDA and a CHF 94 million increase in depreciation and amortisation due to increased capital expenditure on infrastructure. Overall headcount rose by 594 FTEs to 20,108 FTEs. While headcount was higher in Switzerland as a result of corporate acquisitions, the insourcing of external staff and the expansion of customer service in Swiss business, the number of Fastweb employees was lower due to outsourcing.

Excluding costs of CHF 360 million for mobile frequencies acquired in 2012, total capital expenditure rose by 10.5% to CHF 2,396 million and in Switzerland by CHF 52 million or 3.2% to CHF 1,686 million, with the bulk of the spending going on Switzerland’s broadband infrastructure.

Fastweb is on track in Italy despite strong competition and price pressure and will continue to pursue the same strategy. In 2013 Fastweb reduced its low-margin wholesale revenue from interconnection services (hubbing) by a further EUR 42 million, as planned. Excluding hubbing business, revenue dipped slightly by EUR 16 million to EUR 1,597 million.

In CHF million, except where indicated

	2013	2012	Change
--	------	------	--------

Economic performance

Net revenue and results				
Net revenue		11,434	11,384	0.4%
Operating income before depreciation and amortisation (EBITDA)		4,302	4,477	−3.9%
EBITDA as % of net revenue	%	37.6	39.3	
Operating income (EBIT)		2,258	2,527	−10.6%
Net income		1,695	1,815	−6.6%
Earnings per share	CHF	32.53	34.90	−6.8%

Balance sheet and cash flows				
Equity at end of year		6,002	4,717	27.2%
Equity ratio at end of year	%	29.3	23.8	
Operating free cash flow		1,978	1,882	5.1%
Capital expenditure in property, plant and equipment and other intangible assets		2,396	2,529	−5.3%
Net debt at end of period		7,812	8,071	−3.2%

Operational data at end of period				
Fixed access lines in Switzerland	in thousand	2,879	3,013	−4.4%
Broadband access lines retail in Switzerland	in thousand	1,811	1,727	4.9%
Swisscom TV access lines in Switzerland	in thousand	1,000	791	26.4%
Mobile access lines in Switzerland	in thousand	6,407	6,217	3.1%
Unbundled fixed access lines in Switzerland	in thousand	256	300	−14.7%
Broadband access lines wholesale in Switzerland	in thousand	215	186	15.6%
Broadband access lines in Italy	in thousand	1,942	1,767	9.9%

Swisscom share				
Number of issued shares	in thousand	51,802	51,802	–
Closing price at end of period	CHF	470.90	393.80	19.6%
Market capitalisation at end of year		24,394	20,400	19.6%
Dividend per share	CHF	22.00 ¹	22.00	–

Ecological performance

Environmental key figures in Switzerland				
Energy consumption	GWh	503	511	−1.6%
Carbon dioxide CO ₂	tons	25,260	24,662	2.4%
Average carbon dioxide CO ₂ emission vehicle fleet	gram/km	123.0	131.0	−6.1%
Rate of return handy recycling	%	9.8	11.4	

Social performance

Employees				
Full-time equivalent employees at end of year	number	20,108	19,514	3.0%
Full-time equivalent employees in Switzerland at end of year	number	17,362	16,269	6.7%
Fluctuation rate headcount in Switzerland	%	10.7	10.1	
Days lost headcount in Switzerland	number	120,024	117,876	1.8%

¹ In accordance with the proposal of the Board of Directors to the Annual General Meeting.

Key dates

6 February 2014

Annual Press Conference 2013, Zurich

7 April 2014

Annual General Meeting of Shareholders, Zurich

9 April 2014

Ex-dividend date

14 April 2014

Dividend payment

7 May 2014

2014 First-Quarter Report

20 August 2014

2014 Half-Year Report

6 November 2014

2014 Third-Quarter Report

in February 2015

Annual Press Conference 2014, Zurich

