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INTERNET

The cloud: someone else's computer that became part of our lives

Greg arrived at Cloud Warehouse carrying a hard drive and an umbrella. “I'd like my files in the cloud,” he declared. “But what if it rains?” Agnieszka, the warehouse manager, looked at his umbrella. “Greg, our servers are inside buildings. With actual roofs.” ☁️🤣

Does the cloud float above town?

— Where exactly will my photos be?

— On the provider's computers. In data centres.

— They don't float in the air?

— No. Real disks, networks, servers, power and people who maintain it all.

Cloud describes services provided over networks: storage, applications, computing and other resources. You don't need to own or operate all the equipment yourself. But the equipment doesn't disappear.

— Why call it cloud?

— Network diagrams have long used cloud symbols for infrastructure whose details weren't shown.

— Marketing added the weather?

— And the subscription.

— I knew there was a catch.

A warehouse you can reach from anywhere

— I have a photo on my home computer. Can I see it on my phone?

— If the file is in the service and you have access, yes.

Services such as Dropbox, OneDrive and Google Drive let people store and share files. Many also synchronize folders across computers and phones. Not every file visible in the app is physically downloaded: some are placeholders, with data fetched when needed.

— The file icon can be here while the file isn't?

— Not locally, no. That's what offline availability settings are for.

— I'd like labels: “really here” and “not arrived yet”.

— Please read the settings.

— More homework? I came to a warehouse, not a school.

Synchronization: delete once, lose everywhere

Greg opened his laptop and found “Plan for World Domination.docx”.

— Don't need this — he muttered, and clicked Delete.

A minute later he opened his office computer.

— WHERE'S MY PLAN?!

— You deleted it from a synchronized folder — explained Agnieszka. — The service propagated the change.

Synchronization aims to keep file states consistent. Changes, accidental deletions and overwrites can spread rapidly. Some services offer trash, version history and recovery periods, but their limits vary.

— I had it on three computers!

— All three were participating in one synchronization.

— Even mistakes are synchronized?

— Very efficiently.

— Turn that off!

— We can adjust it. First, let's try recovering your document.

A backup isn't a folder called BACKUP

Greg arrived with a giant box labeled BACKUP.

— I have a backup!

— Where is it? — asked Agnieszka.

— In the same synchronized folder. I named the subfolder “backup”.

— That's still the same problem.

A proper **backup** should let you recover after failure, accidental deletion or malware. Independent copies, separate permissions, versioning and offline media help. Keeping files on several of a provider's disks may protect against hardware failures, but doesn't guarantee recovery from an accidental deletion.

— So the word “cloud” doesn't mean backup?

— No. Neither does writing BACKUP on a folder.

— No backup is stupid; not having one is!

— Right. And you should test restoration.

— I'll add that to my procedures. Where are they?

— In the folder you deleted.

Three floors: SaaS, PaaS and IaaS

Agnieszka led Greg to the lift.

— First floor: a ready-made restaurant. Second: a fully equipped kitchen. Third: an empty unit with utilities, which you furnish yourself.

— Where do I get lunch?

— Depends how much you want to do yourself.

SaaS means using a ready application, such as webmail or an online editor. **PaaS** provides an environment for running your applications, with the provider managing part of the platform. **IaaS** offers fundamental resources such as virtual machines, disks and networks, leaving more administration to the customer.

— The lower I go, the more I can configure?

— Roughly. And the more I can break.

— What if I burn lunch in SaaS?

— The provider runs the kitchen but isn't responsible for every user decision.

— Then why did I come here?

— Your files, Greg. Remember?

Who holds the warehouse keys?

The guard asked Greg for his password.

— Is that enough?

— A second authentication factor and sensible permissions would be wise.

Cloud security involves **shared responsibility**. Providers maintain defined parts of infrastructure and services. Customers remain responsible for aspects of accounts, access, sharing and configuration. Details vary by model.

— If I share a link saying “Anyone can download”, can I complain that people download it?

— Not if it's supposed to be confidential.

— But the disks are encrypted?

— Encryption helps, but it doesn't replace access control. Who controls the keys matters too.

— Somebody else's computer, but still partly my responsibility?

— Exactly. Don't tape your password to the door.

What if the cloud gets sick?

The green Available light went out.

— A STORM! — shouted Greg, opening his umbrella.

— An outage, not rain.

Data centres need power, connectivity and functioning software. Even large cloud providers experience failures. Replication across zones or regions can improve availability, depending on the service and setup. **High availability isn't automatically a backup.**

— What if my Internet goes down?

— You may be unable to reach files without a prepared offline copy.

— But the provider has three data centres!

— That doesn't mean your service runs in all three.

— So I need to check what I actually bought?

— Exactly.

Greg folded the umbrella.

— The most dangerous part of this cloud might be the contract.

The bill for an invisible shelf

The accountant arrived with an invoice.

— Subscription, storage, operations and transfer, according to your plan.

— But I didn't buy a physical disk!

— You're using one somebody had to purchase, power and maintain.

Cloud services may charge subscriptions or usage-based fees. Depending on the product, costs can include capacity, computing, outbound traffic and operations. Scaling is convenient, but expenses can rise unnoticed.

— I could accidentally rent a very expensive warehouse?

— Yes. Use budget alerts and check bills.

— What if I stop paying?

— That depends on the terms. Don't assume files remain forever.

— I'd like an exit plan.

— Good. Plan for export and migration in advance.

The cloud isn't magic

Greg collected his recovered document.

— So the cloud isn't a disk in the sky?

— No.

— Synchronization isn't backup?

— No.

— And high availability isn't immortality?

— Also no.

Cloud services provide convenient access to resources on somebody else's infrastructure, but don't eliminate the need to protect your data. Understand the service, control access, keep independent copies and know how to restore them.

— Can I keep files locally and with a provider?

— Of course, as long as you know which copies are independent.

— I think that's everything.

— Sure?

— One more thing. Can you restore the files I deleted last year?

Agnieszka reached for the data recovery department's number.

Cloud Warehouse management reports: servers are firmly on the ground, roofs aren't leaking, and nobody needs to collect files from rainwater. Greg recovered his document and created a folder called BACKUP_FOR_SURE. Inside he put a shortcut to the synchronized folder. Accounting ordered a huge sign: “THE CLOUD ISN'T MAGIC. A SHORTCUT ISN'T A COPY.” ☁️💾🤣❤️