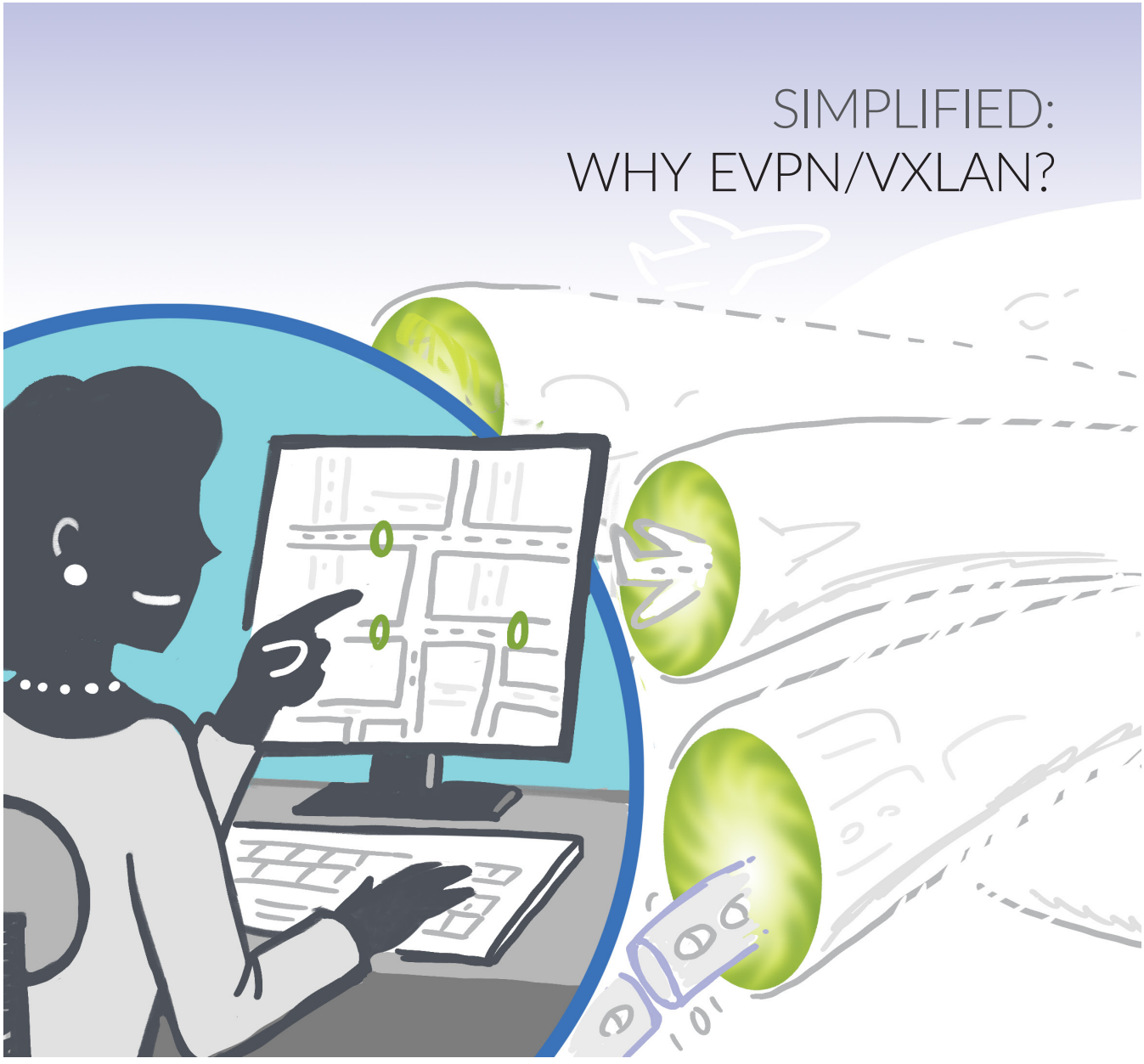
JUNIPER NETWORKS | Engineering Simplicity

SIMPLIFIED: WHY EVPN/VXLAN?



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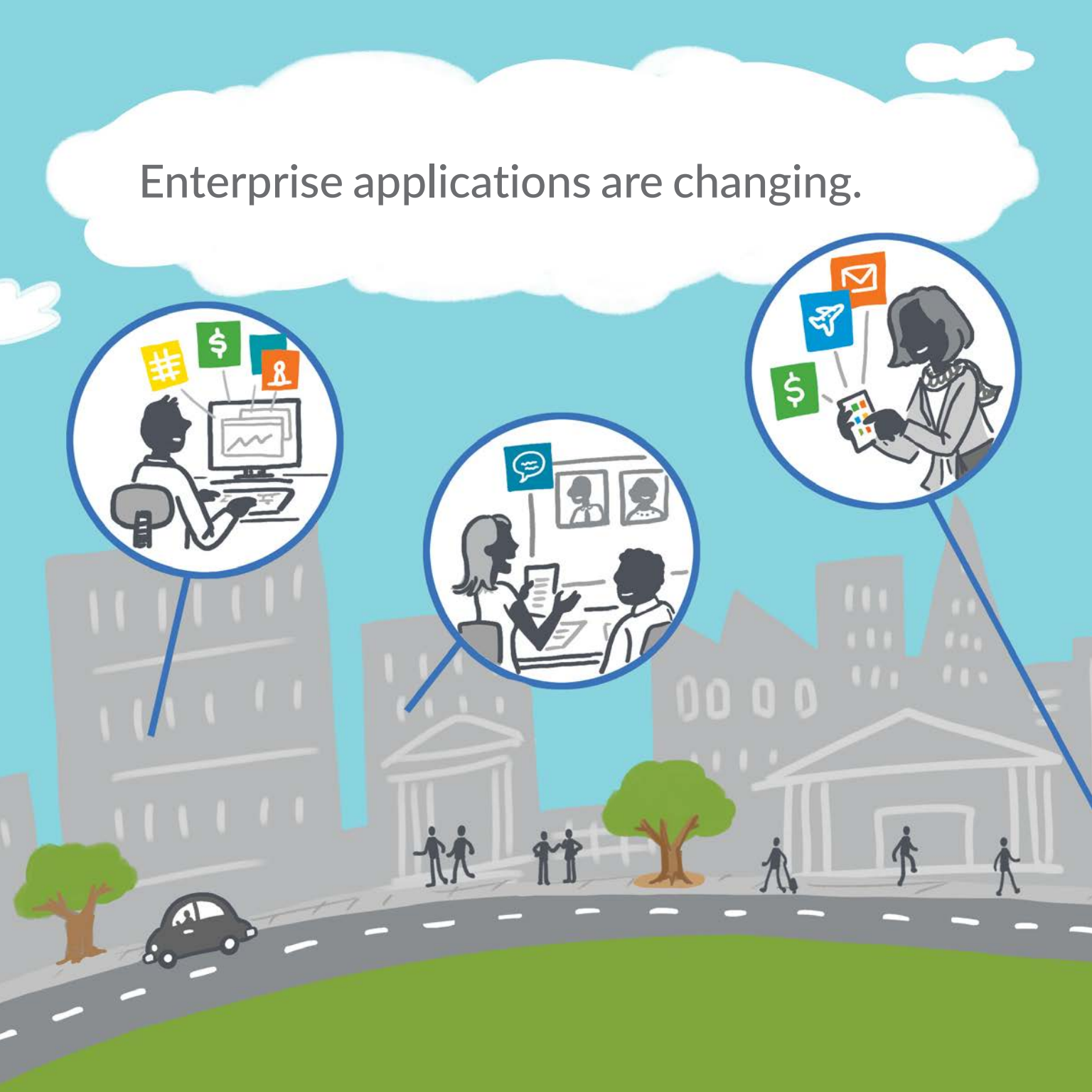
SIMPLIFIED:
WHY EVPN-VXLAN?

Enterprise applications are changing.



Some apps are running in virtual machines…

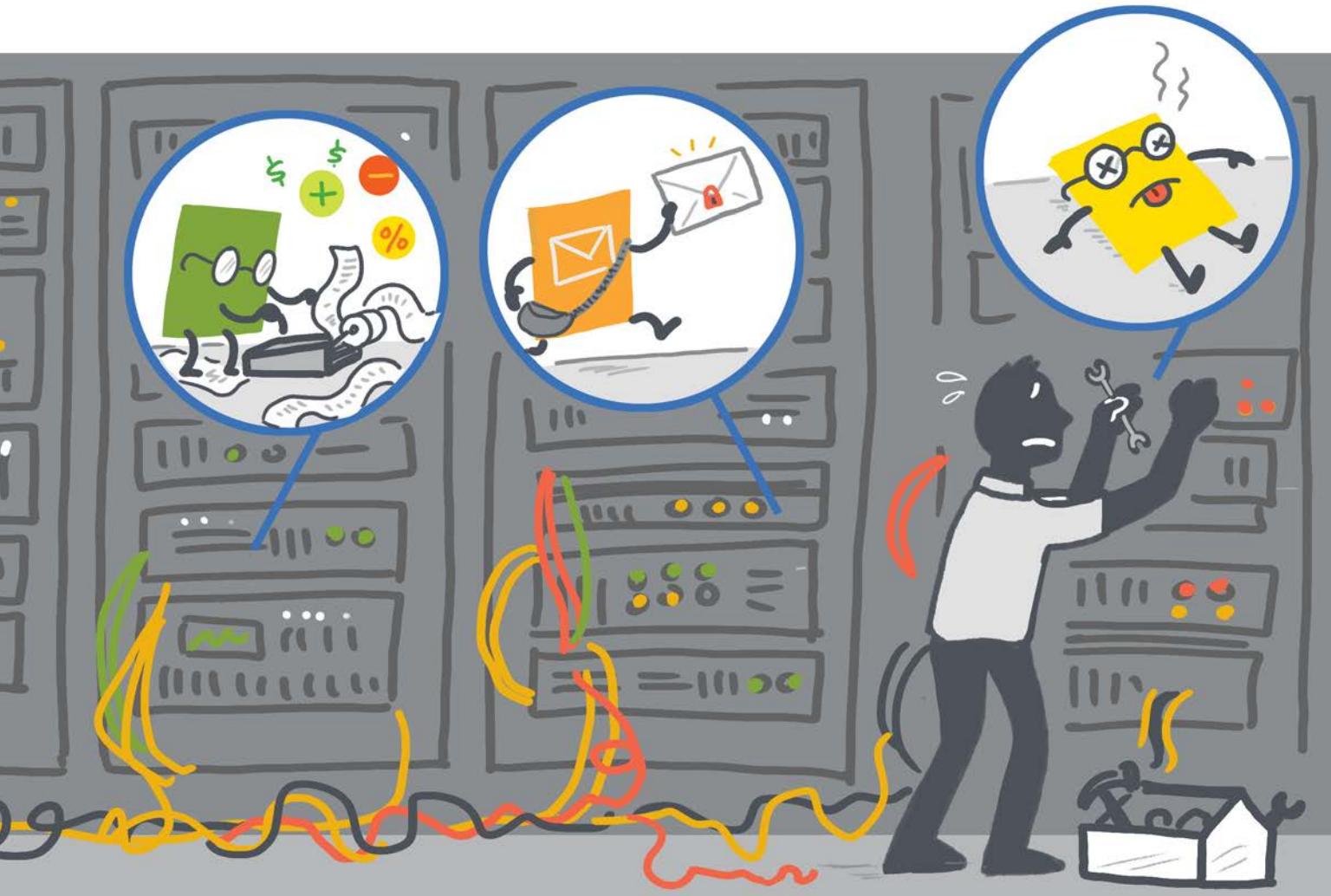
…and others in containers.

Some applications work in the cloud...

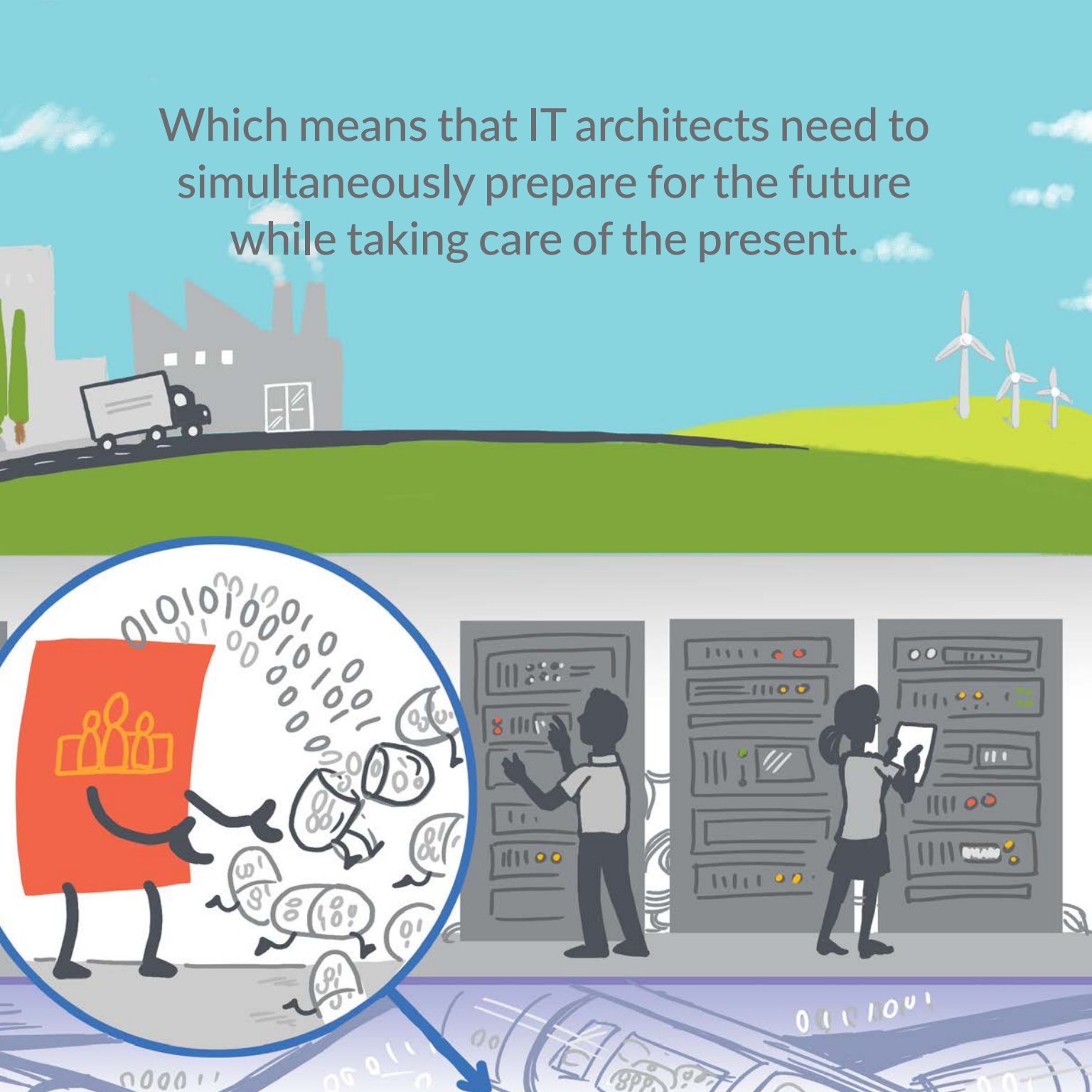
...some in the
data center, campus,
or branch.

It's tempting to declare that change is everywhere, but that's just not true....

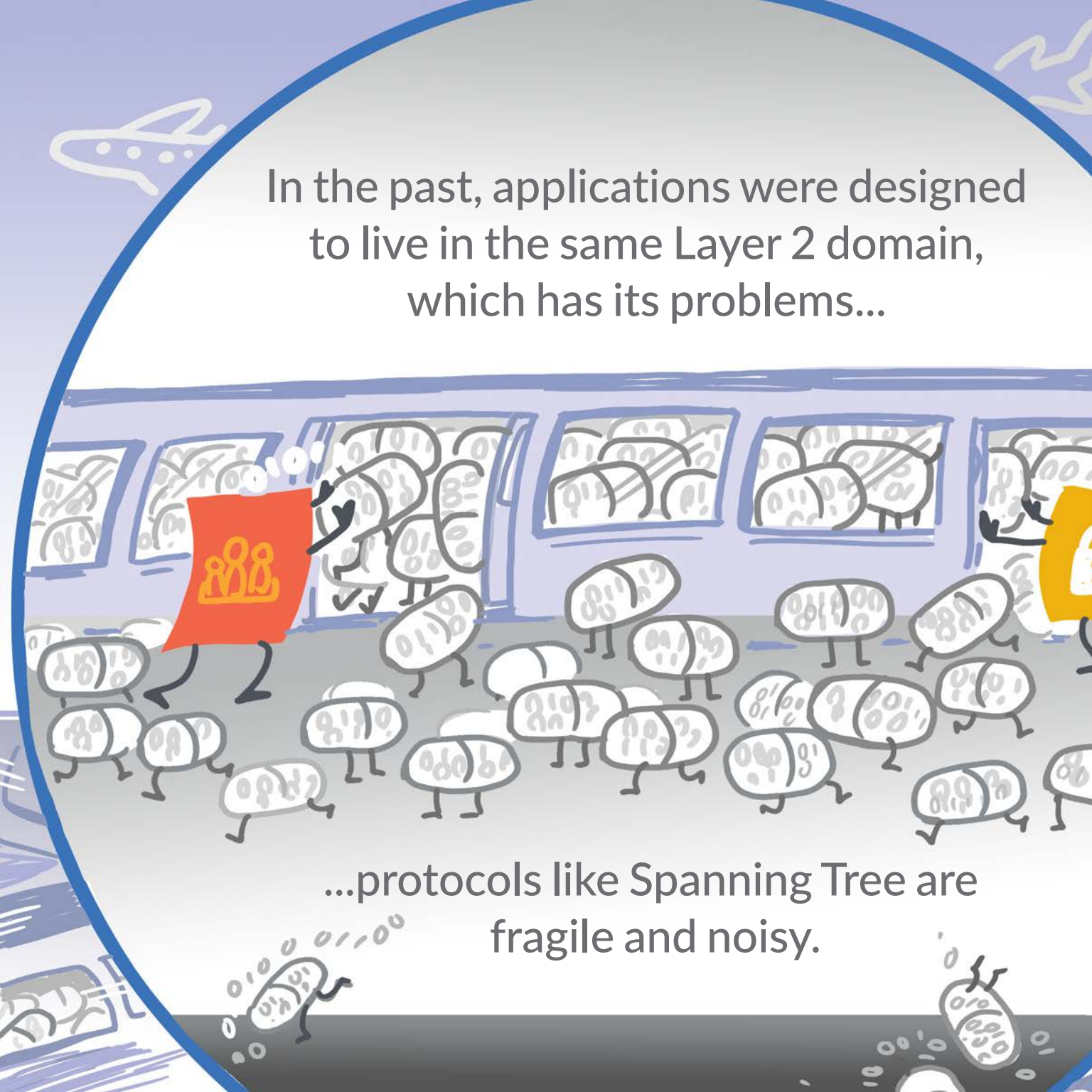
...for every new application, there are dozens of older applications that aren't modular and likely run on bare metal.



Which means that IT architects need to simultaneously prepare for the future while taking care of the present.



In the past, applications were designed to live in the same Layer 2 domain, which has its problems...

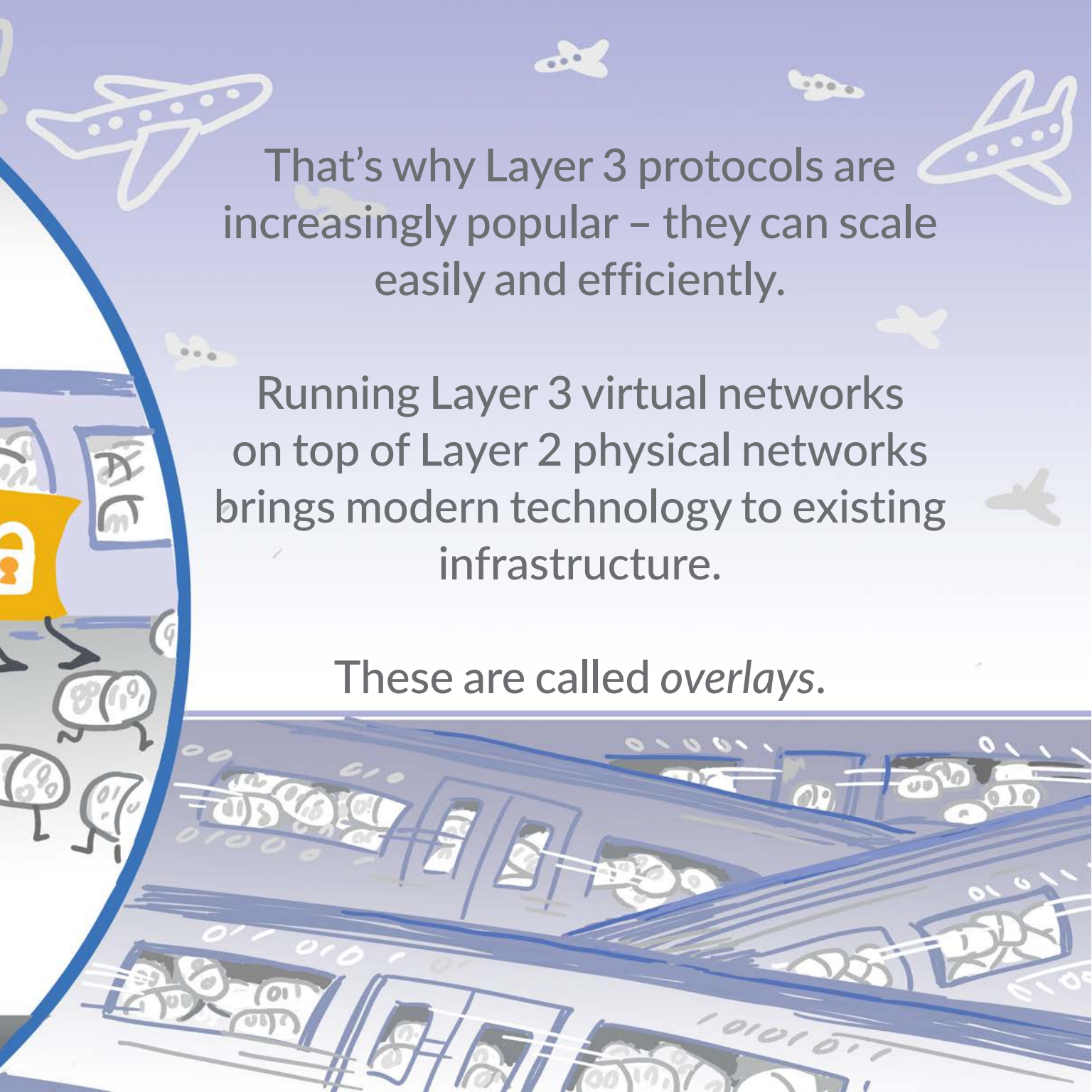


...protocols like Spanning Tree are fragile and noisy.

That's why Layer 3 protocols are increasingly popular – they can scale easily and efficiently.

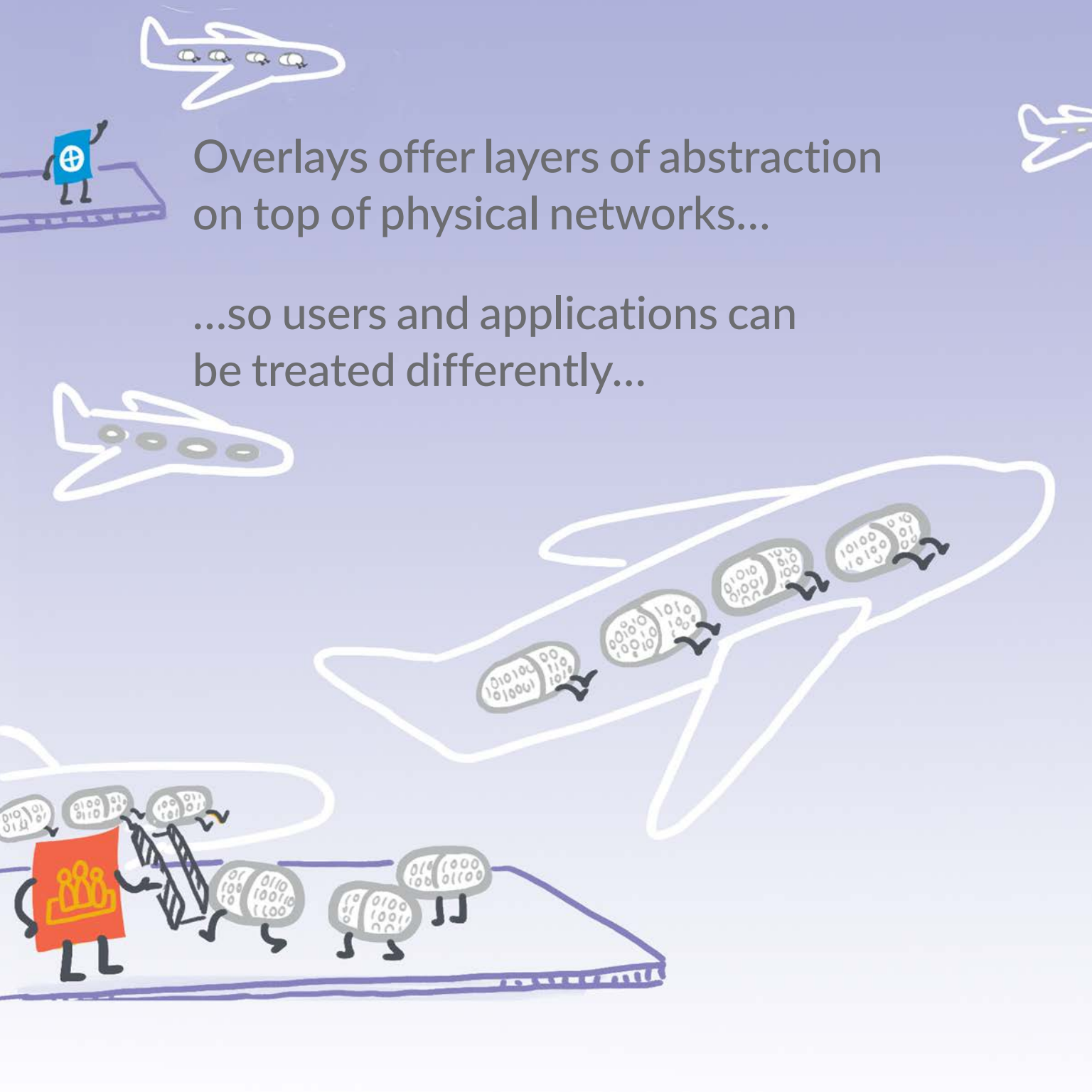
Running Layer 3 virtual networks on top of Layer 2 physical networks brings modern technology to existing infrastructure.

These are called *overlays*.

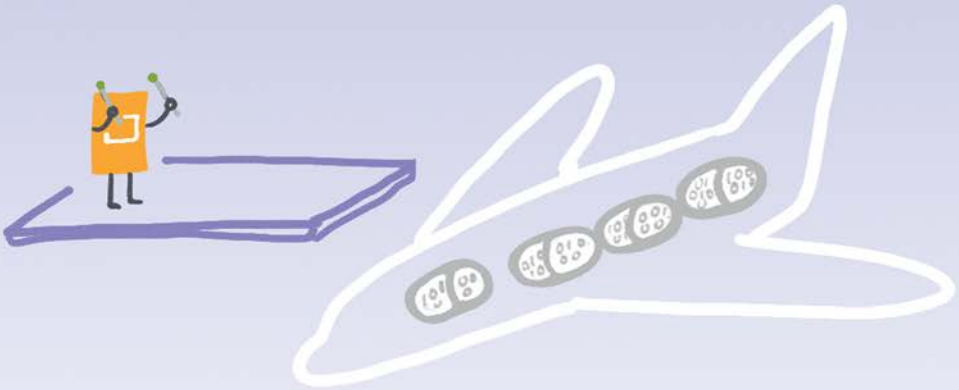


Overlays offer layers of abstraction on top of physical networks…

…so users and applications can be treated differently…

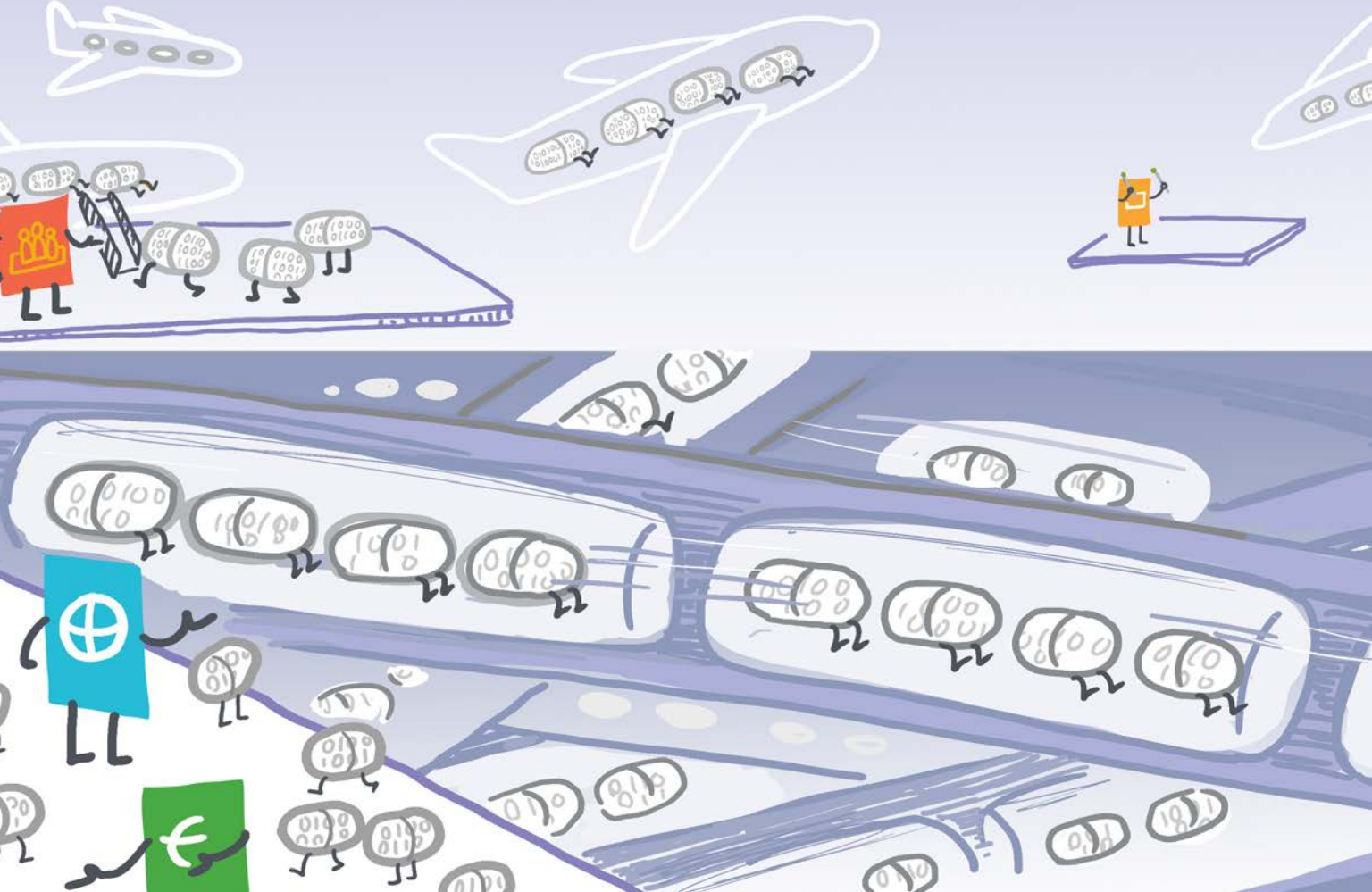


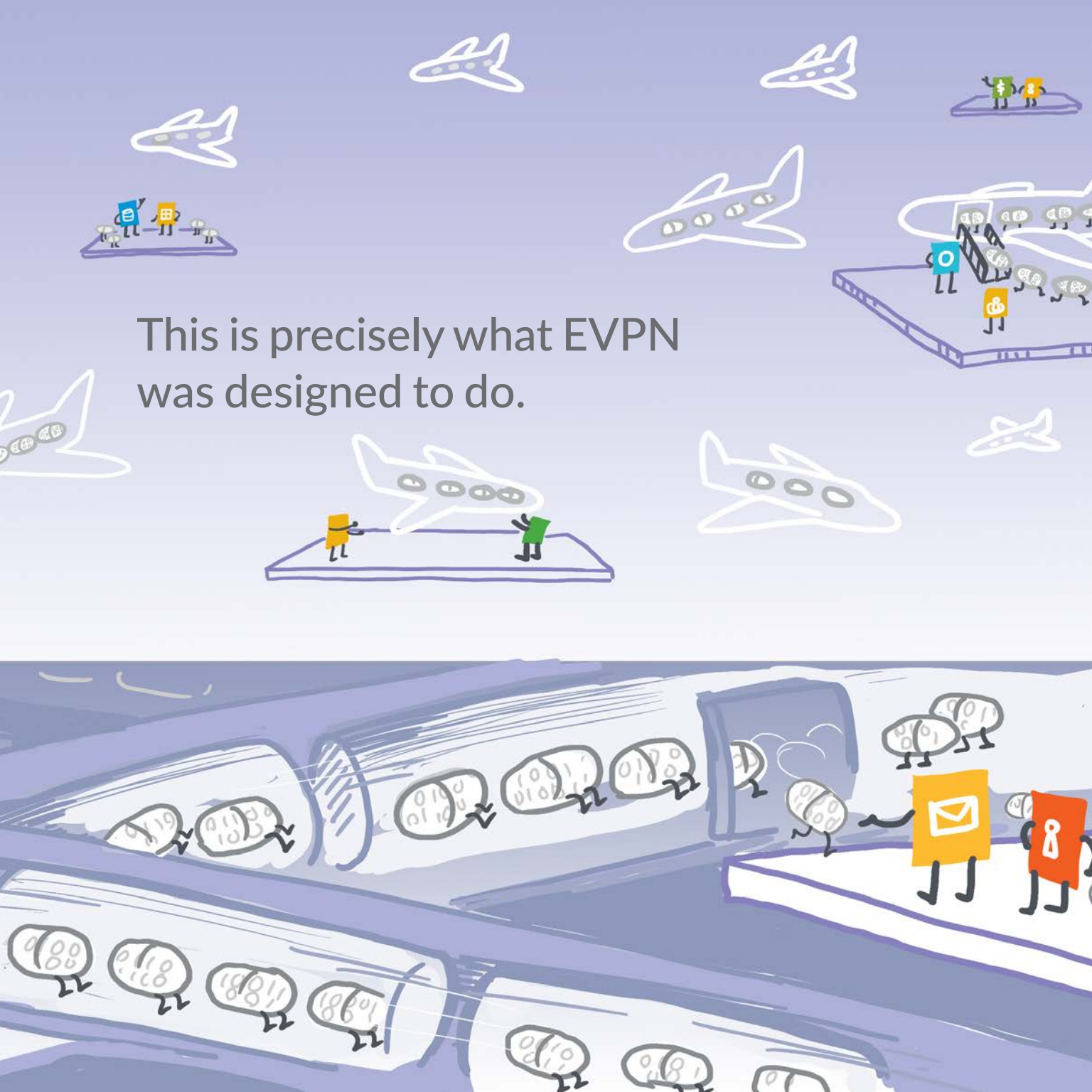
…tailoring experience, or security, or connectivity to individual needs.



Overlays allow newer applications to run over older infrastructure, solving for both yesterday and tomorrow.

While older apps still require Layer 2 connectivity, virtualization provides these apps with their own virtual networks, using *tunnels* to connect them.




This is precisely what EVPN
was designed to do.

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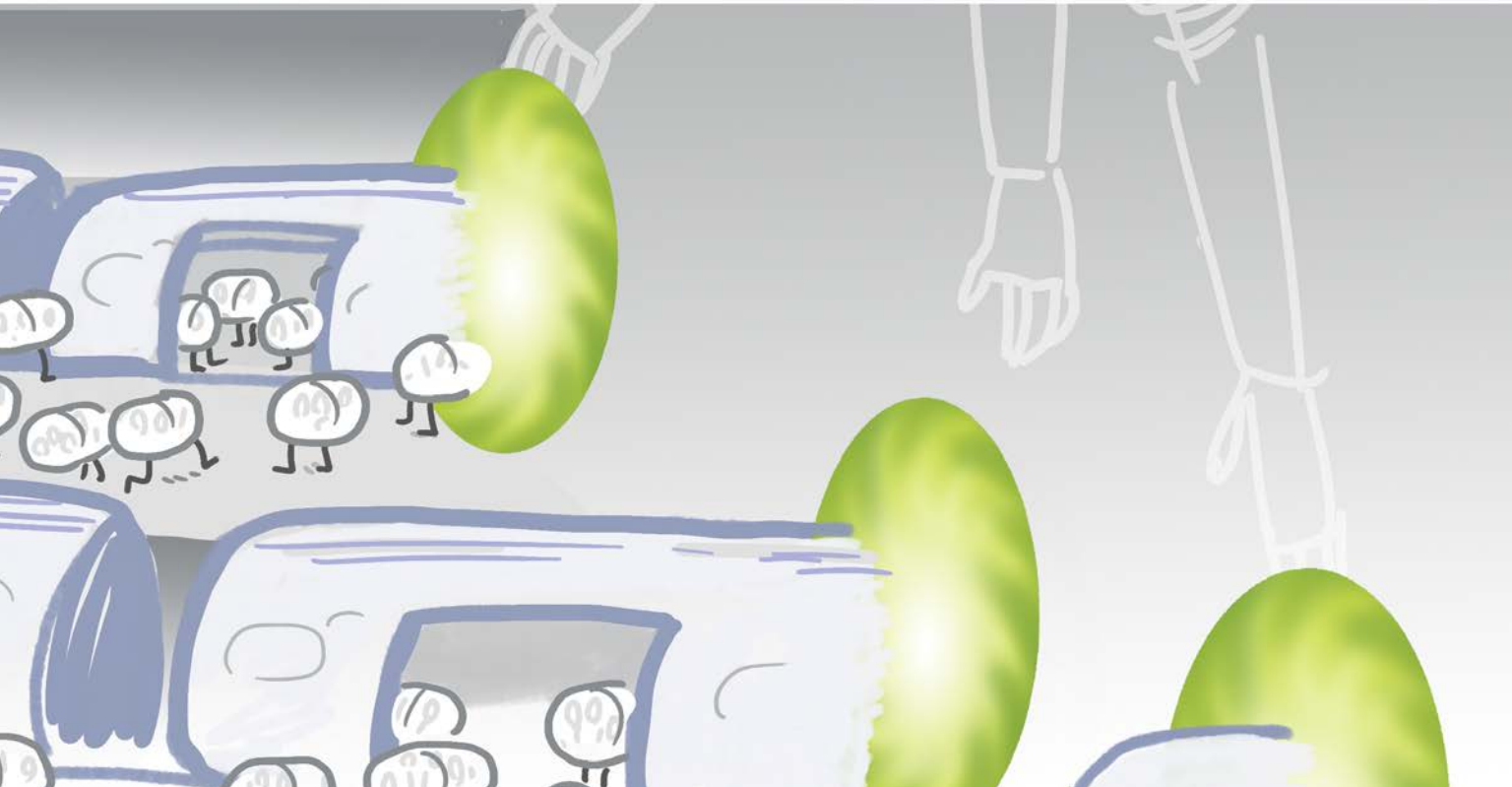
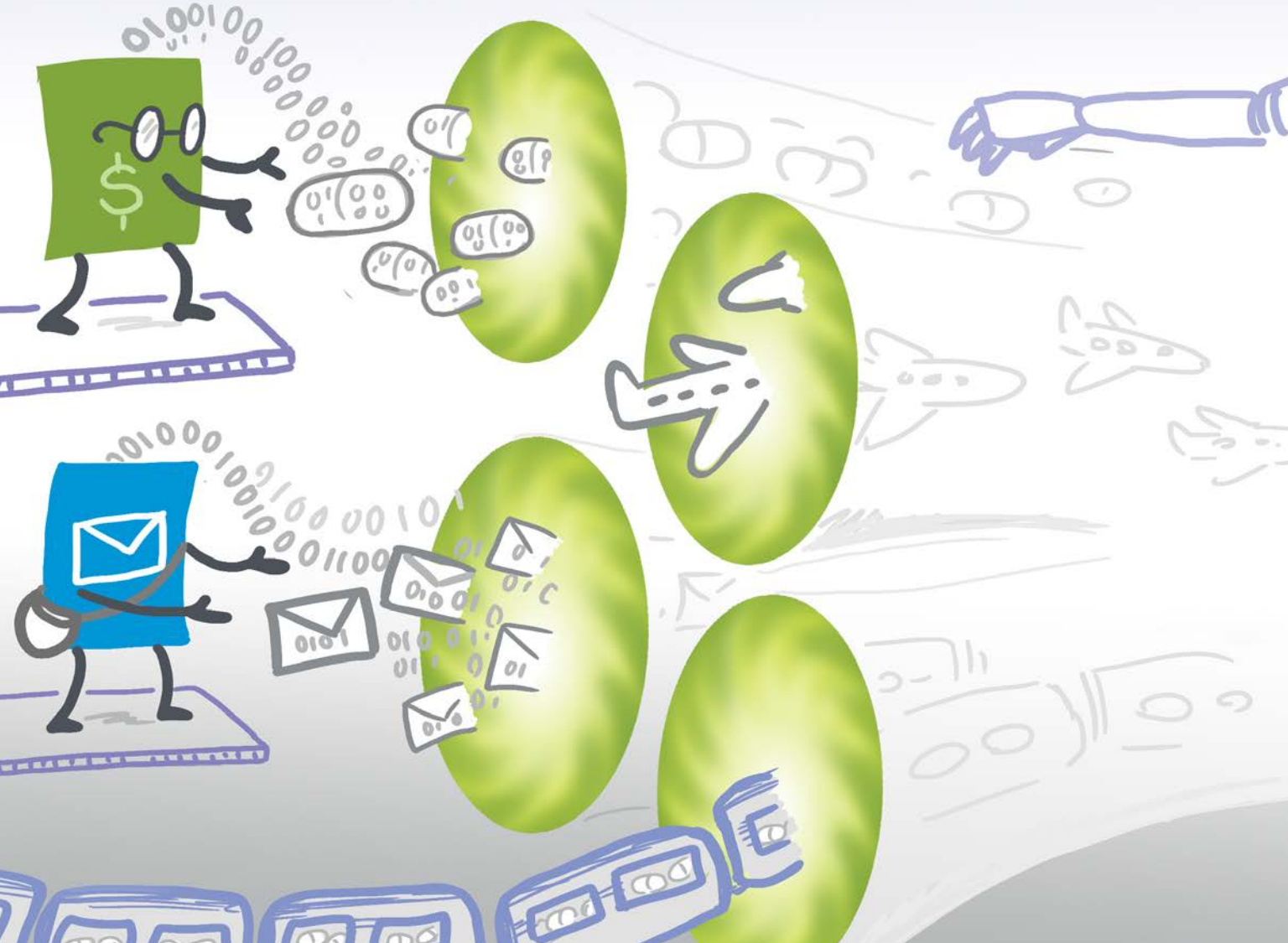
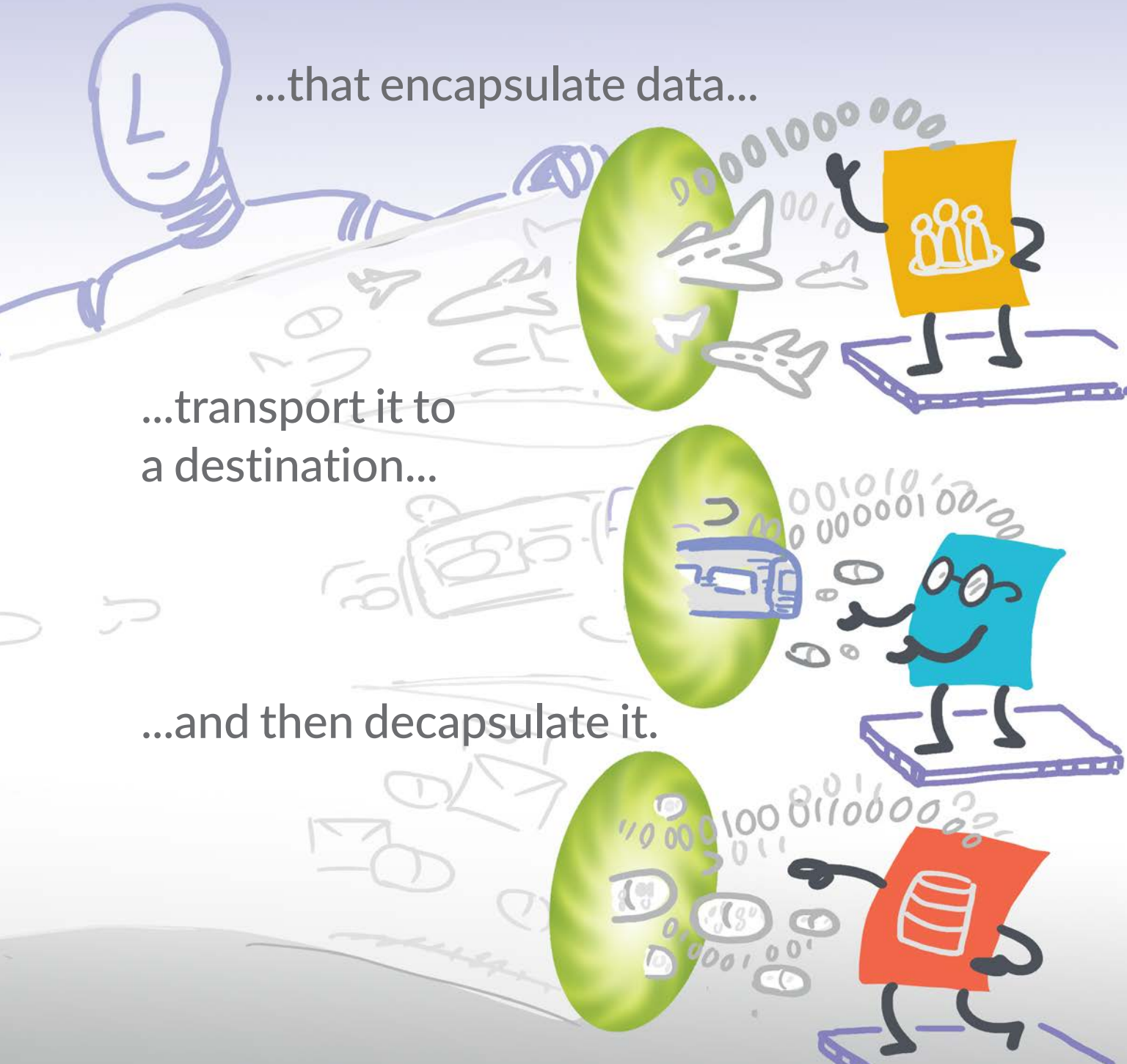
EVPN was made to support Layer 3 virtualization for newer apps, while providing Layer 2 connectivity for older apps.



Because EVPN works with Layer 2 protocols like VXLAN (a more scalable way to segment the network) you can create virtual tunnels...

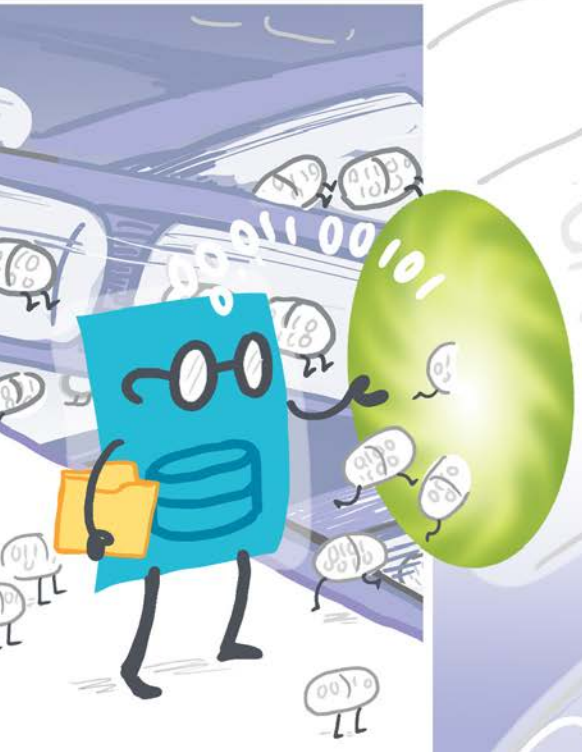


...that encapsulate data...

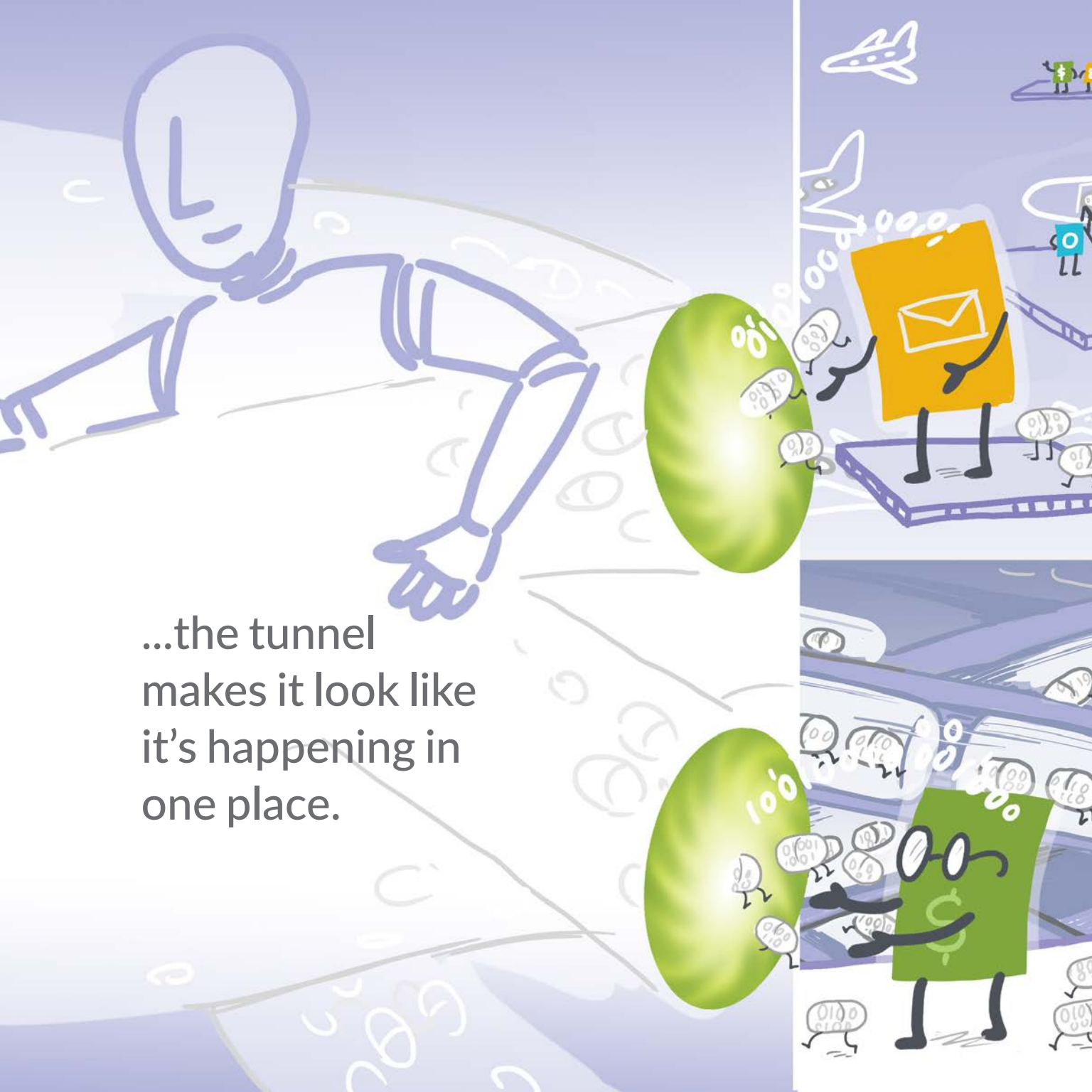


...transport it to
a destination...

...and then decapsulate it.

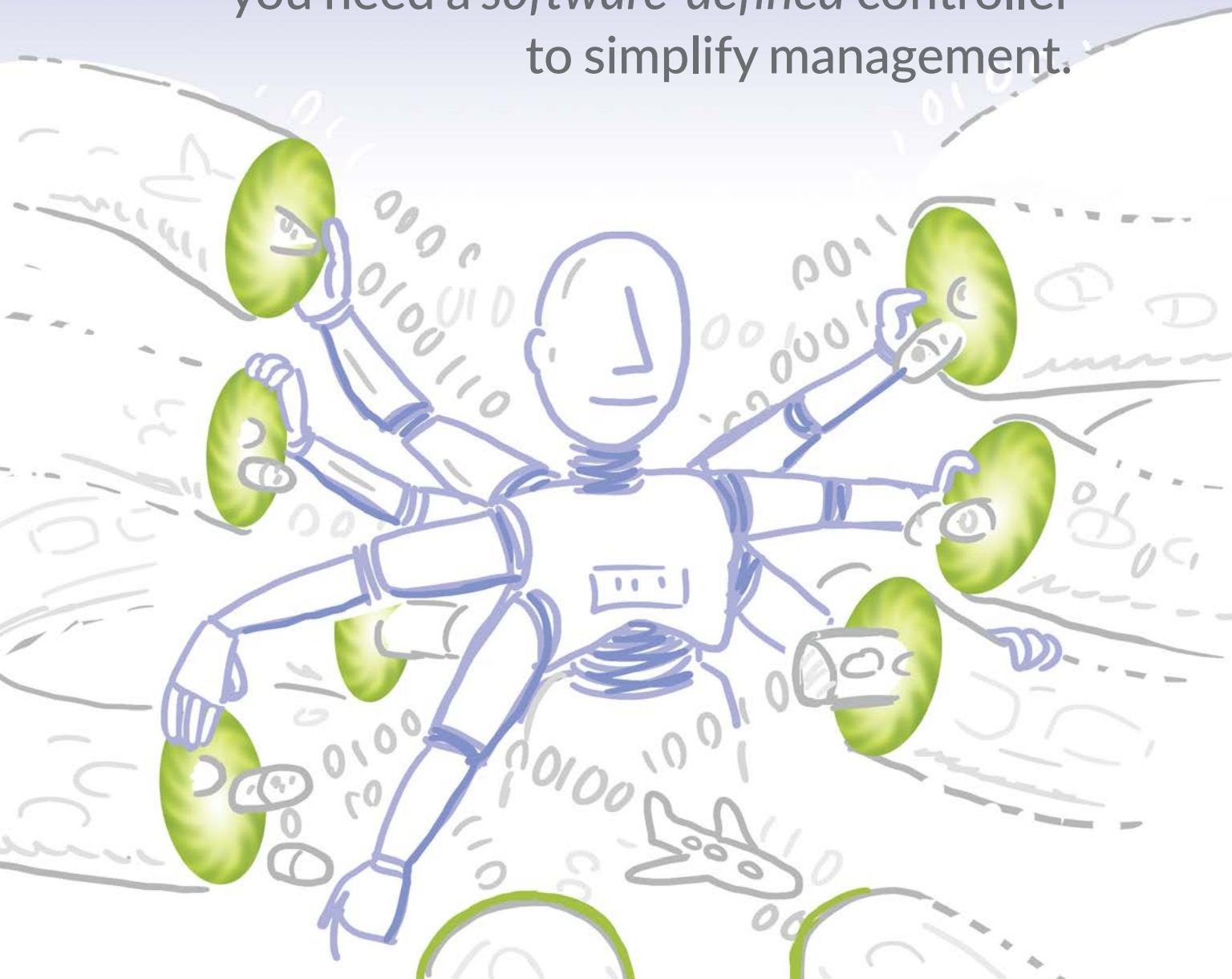


So even if data leaves one network and goes to another...

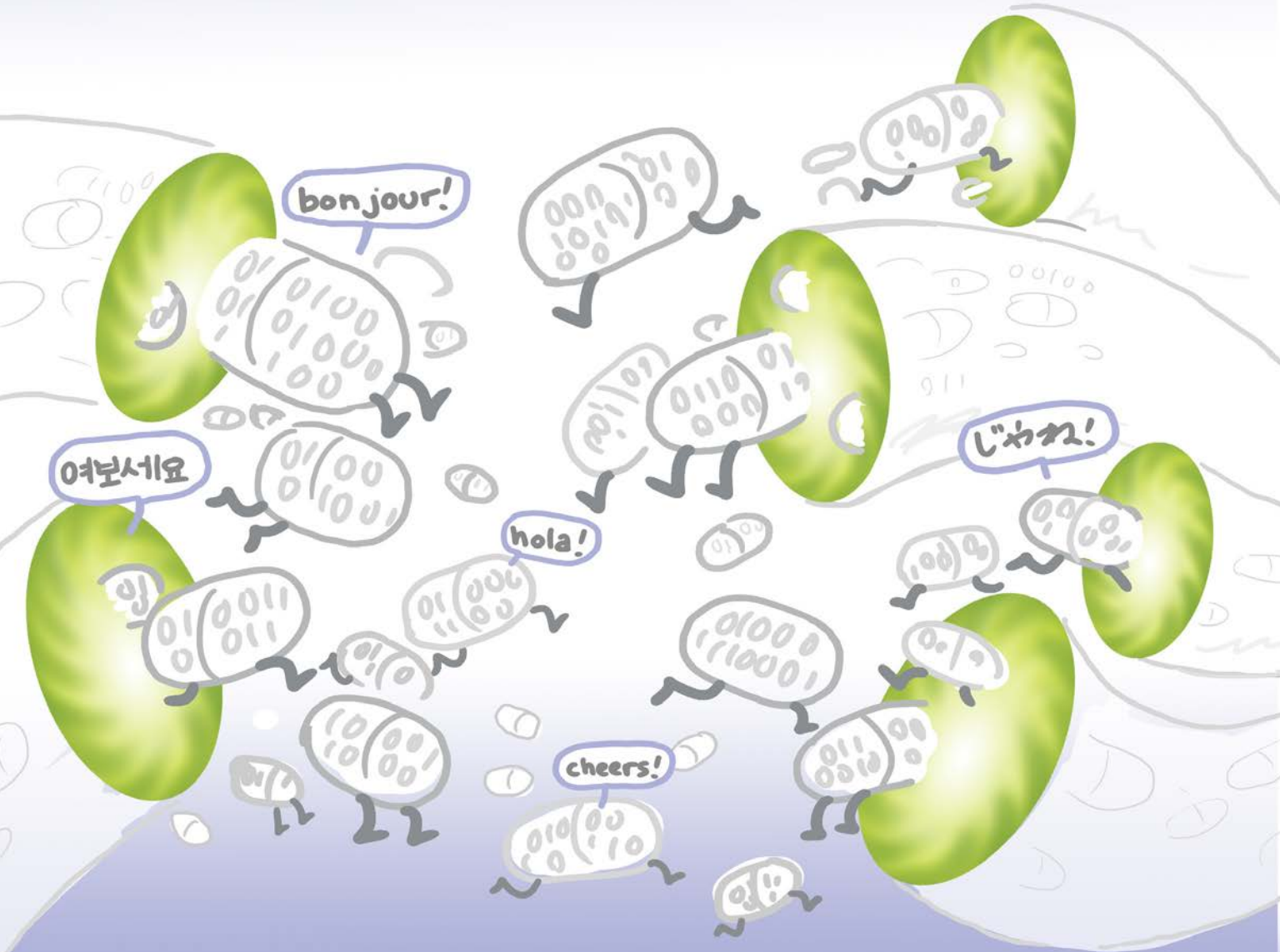

...the tunnel
makes it look like
it's happening in
one place.

Operators can set the policy at these tunnel endpoints. When there are just a few tunnels, it can be done manually – sometimes called *controller-less overlays*.

When there are a lot of tunnels,
you need a *software-defined* controller
to simplify management.



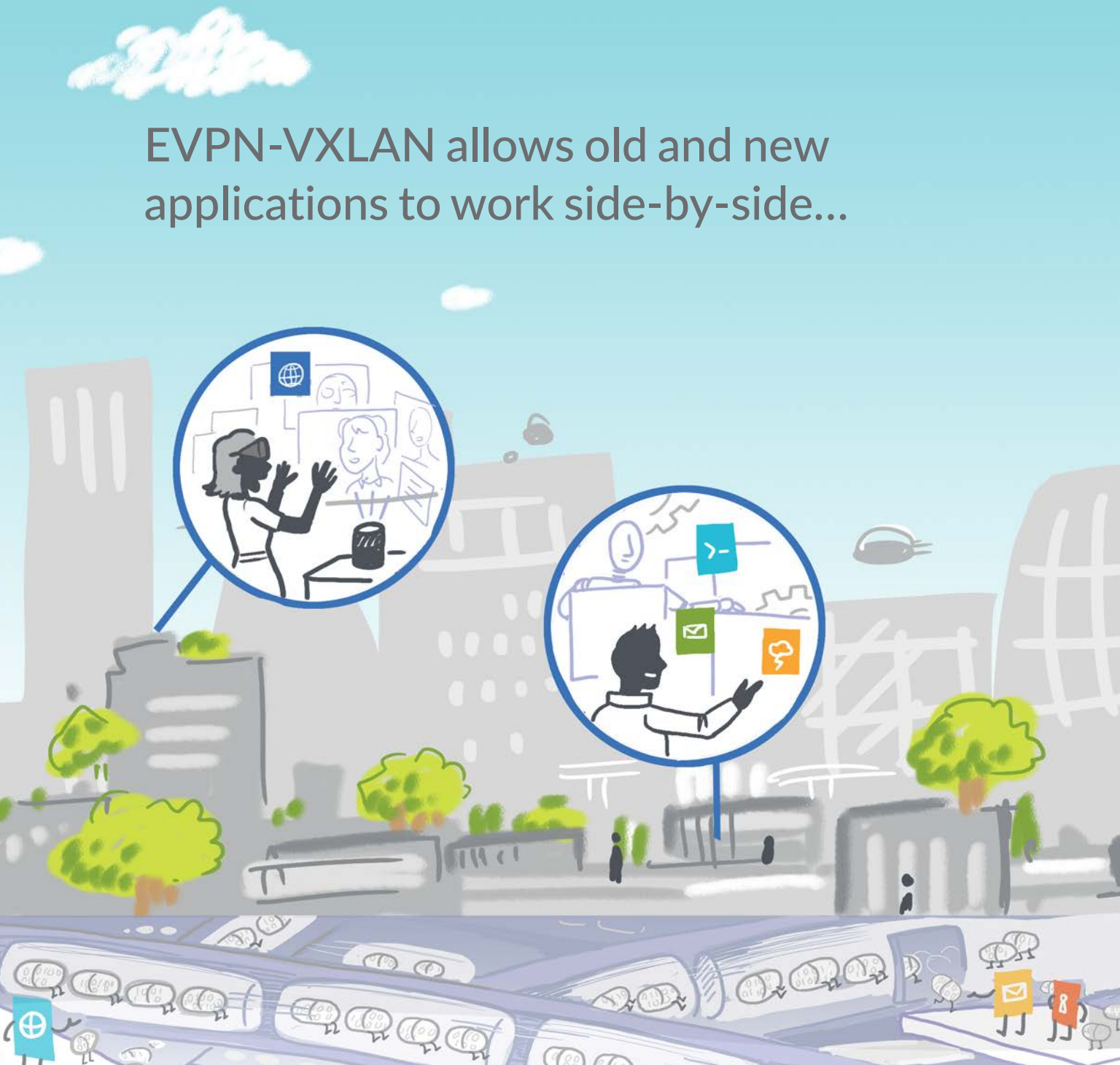
EVPN also acts as an open standard that works between multiple vendors.



That's why EVPN has emerged as a standard for traffic between domains...

...bridging the campus, branch, cloud, and data center.

EVPN-VXLAN allows old and new applications to work side-by-side…



…helping enterprises to unify operations
over diverse environments.

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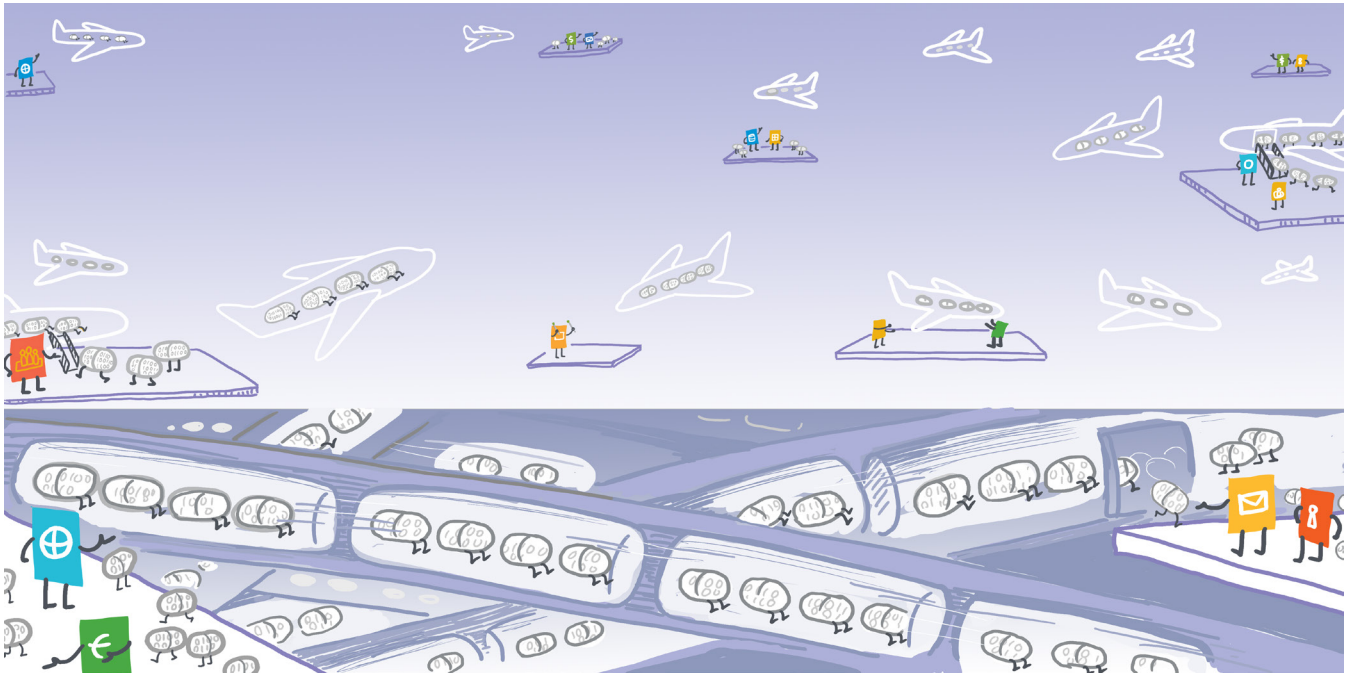
https://www.juniper.net/us/en/dm/evpn/



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