



Google Cloud

Student Slides

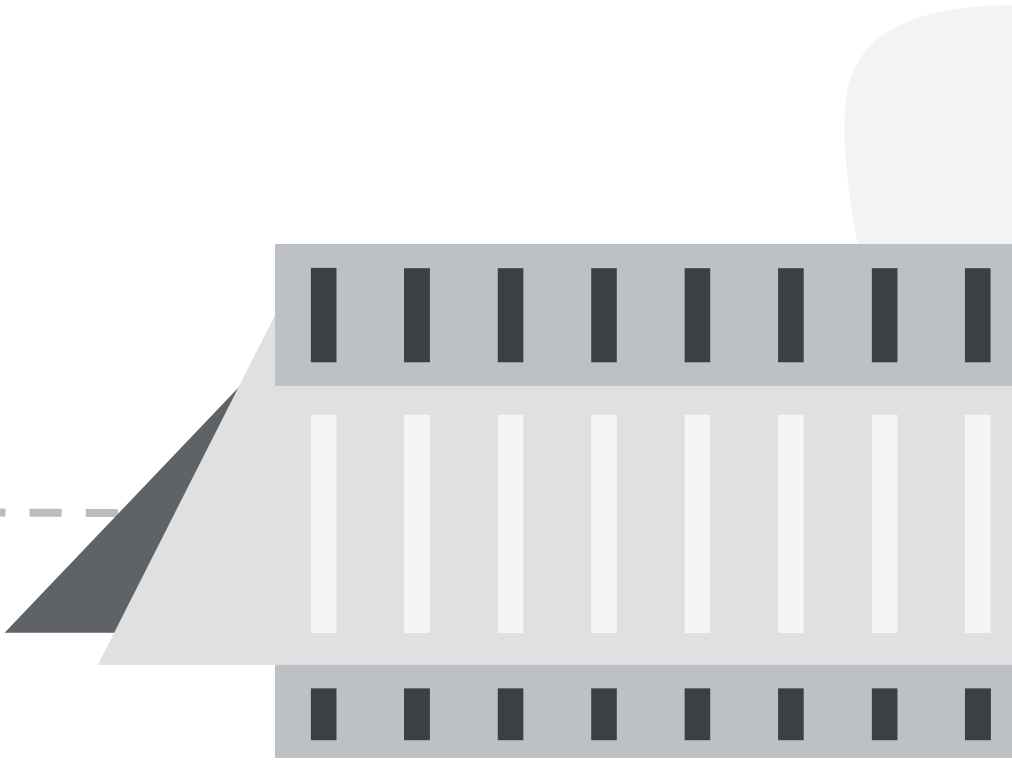
Innovating with Data
with Google Cloud

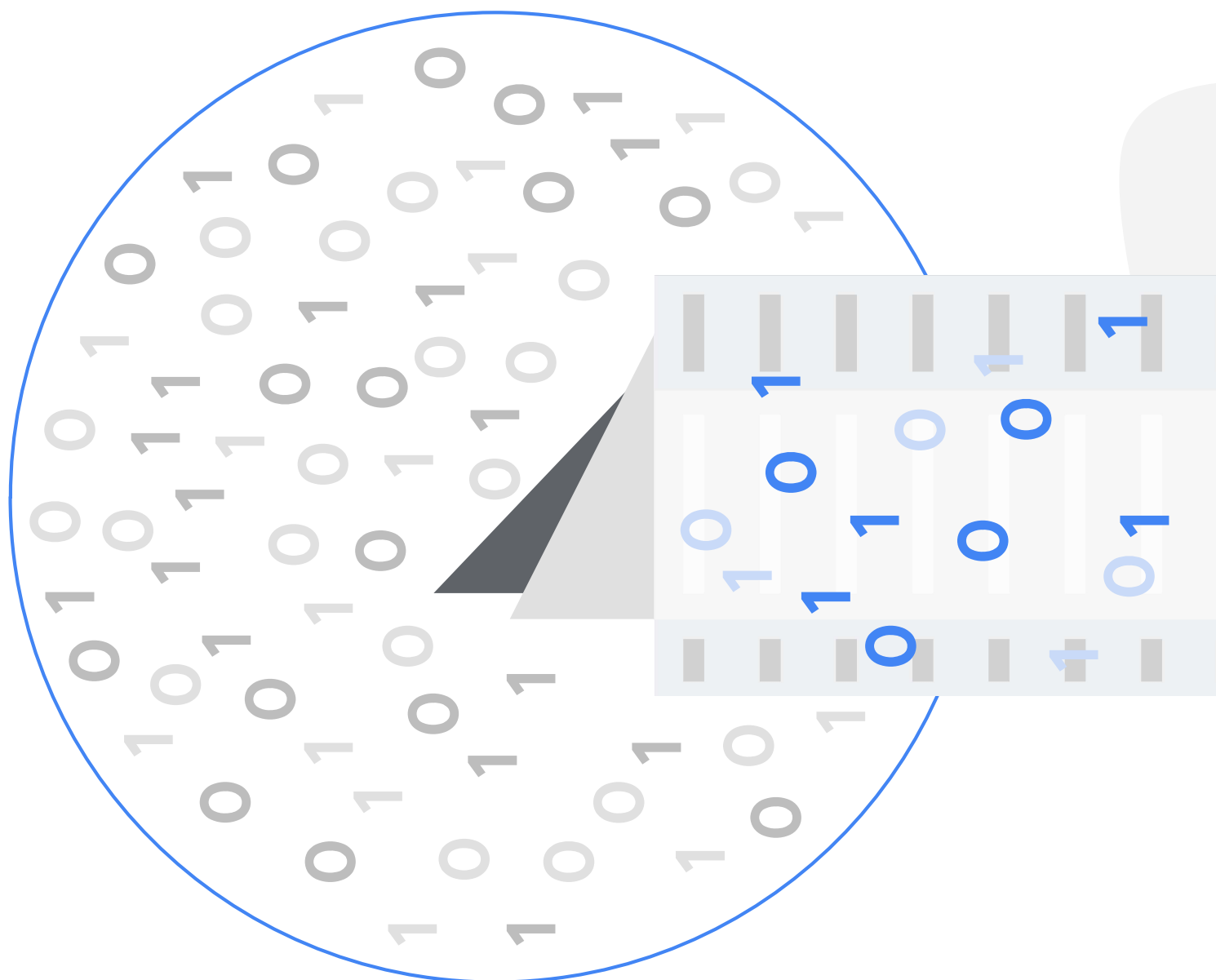


Google Cloud

Module 1: Student Slides

The Value of Data







0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

0

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

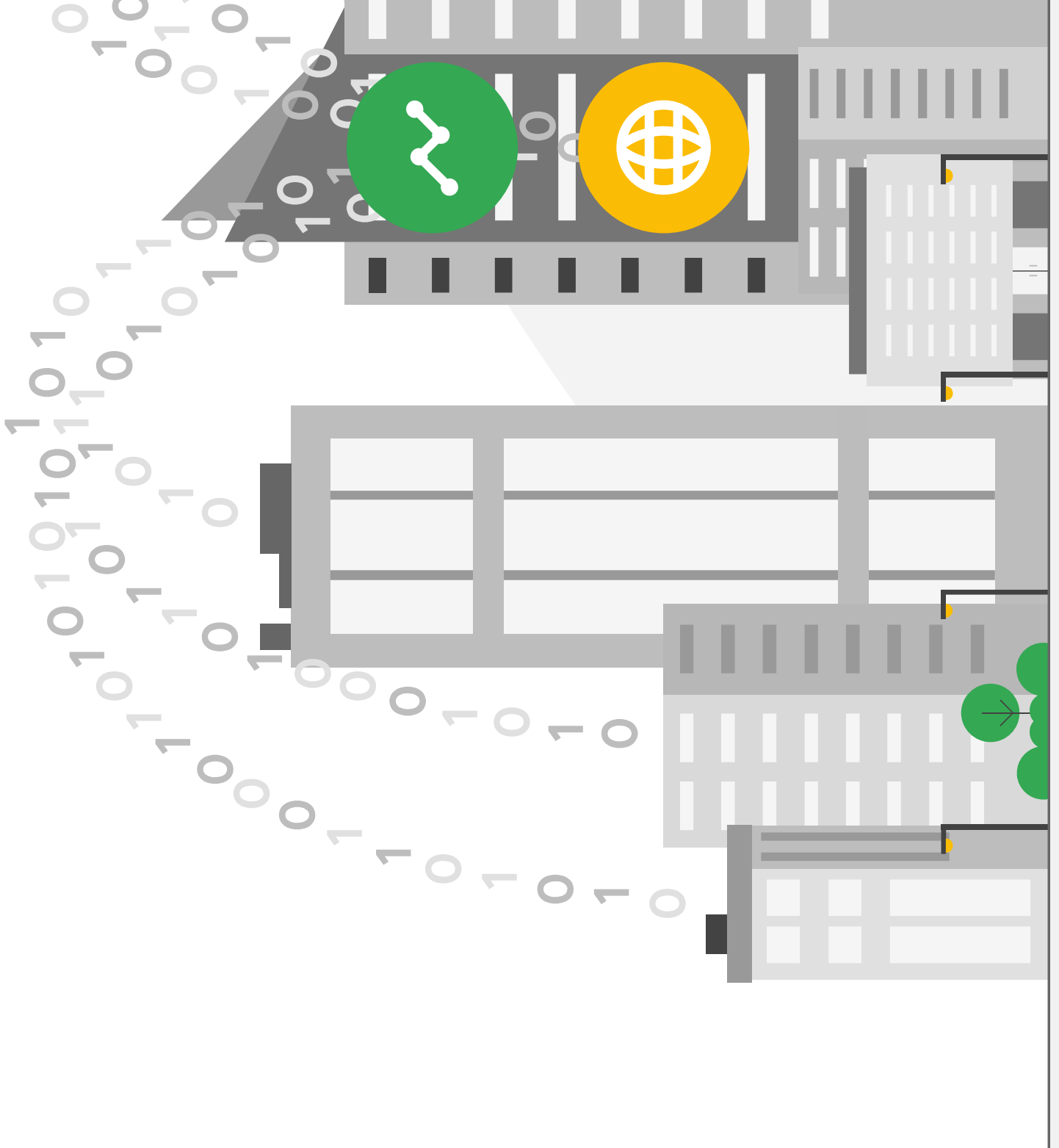
1

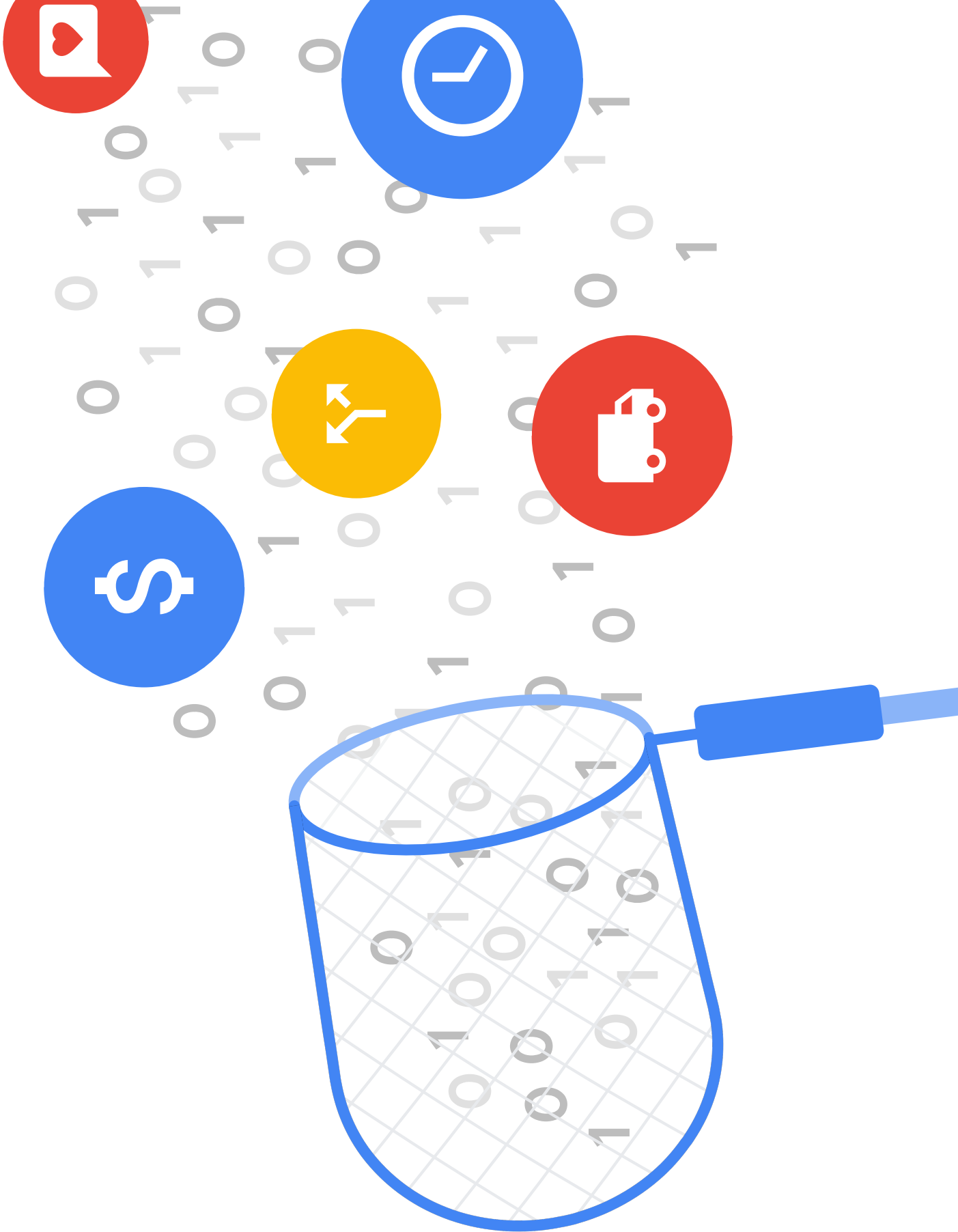
1

1

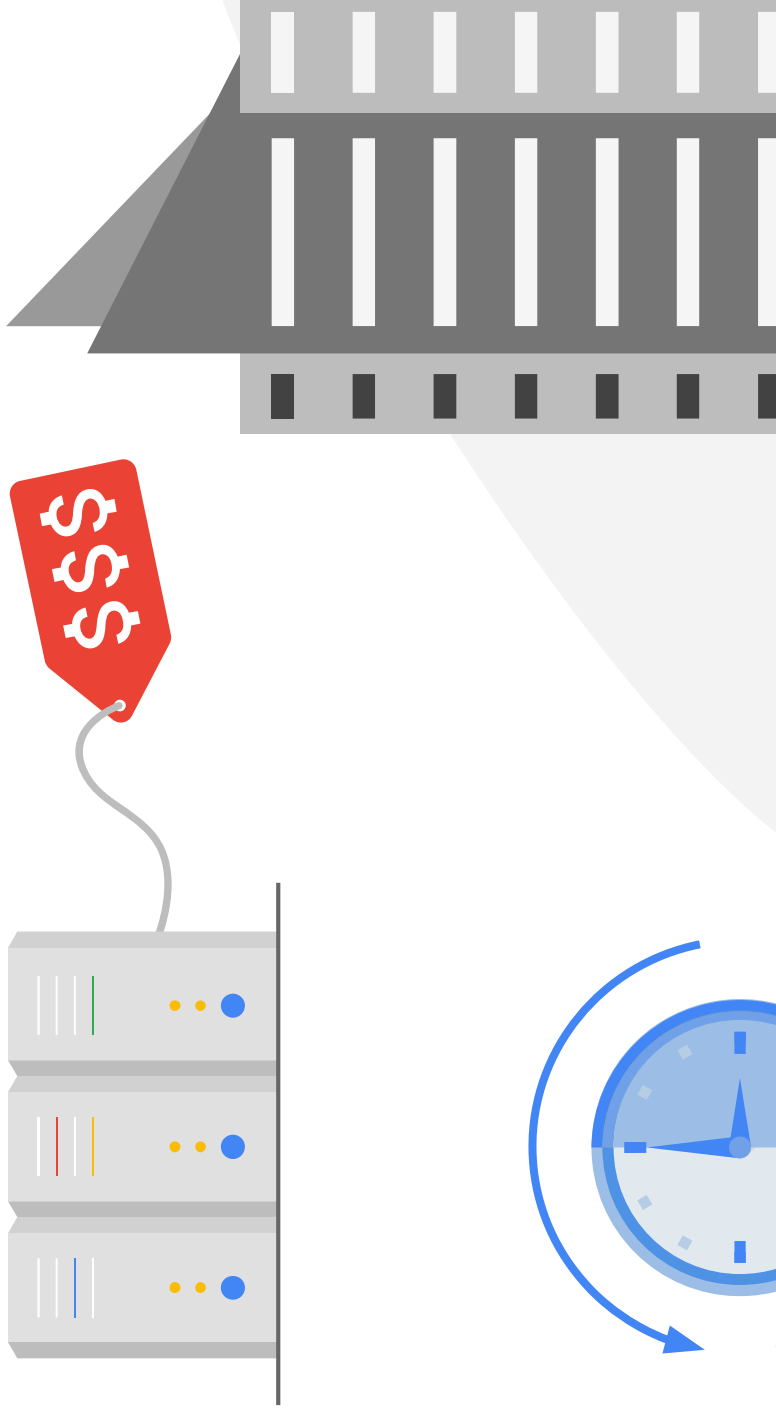
1



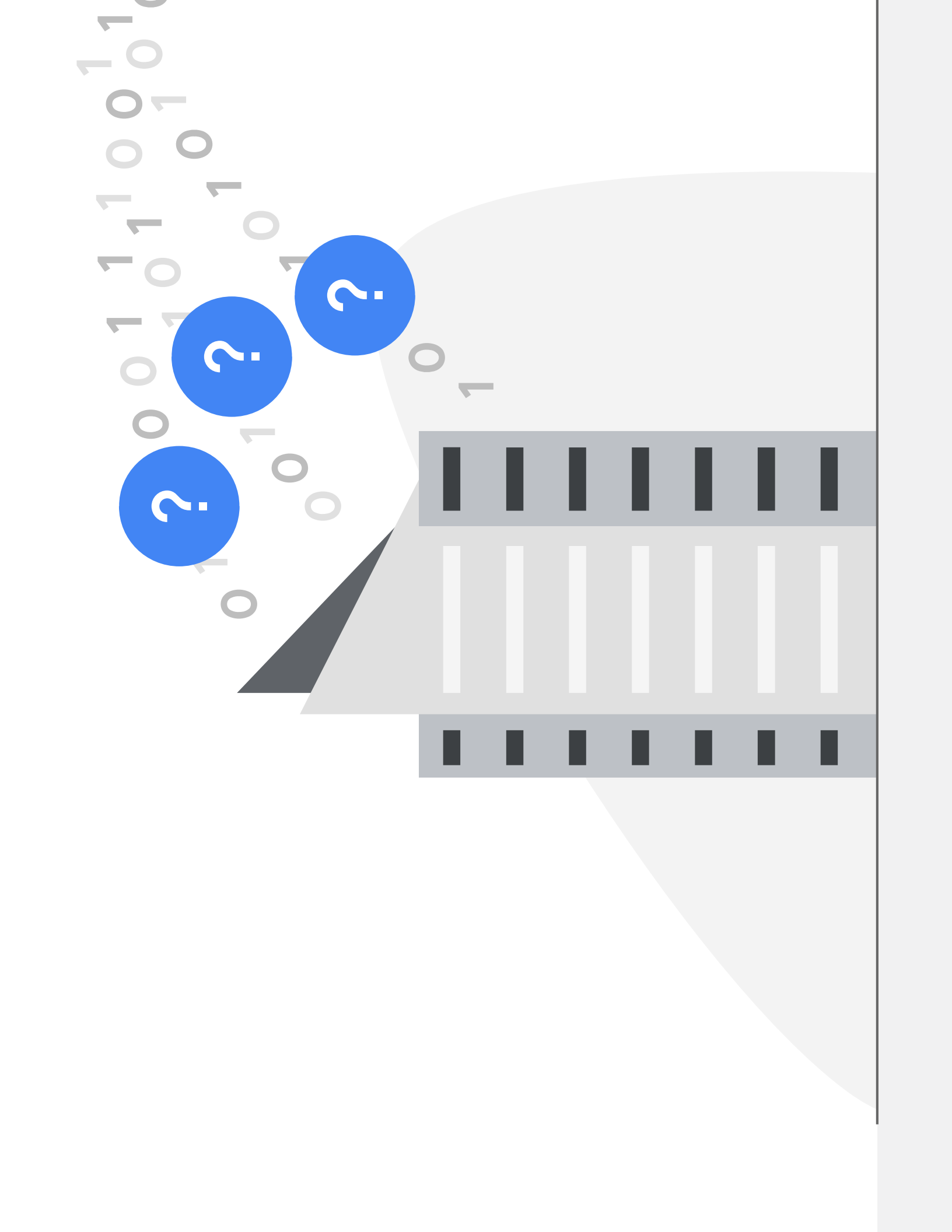


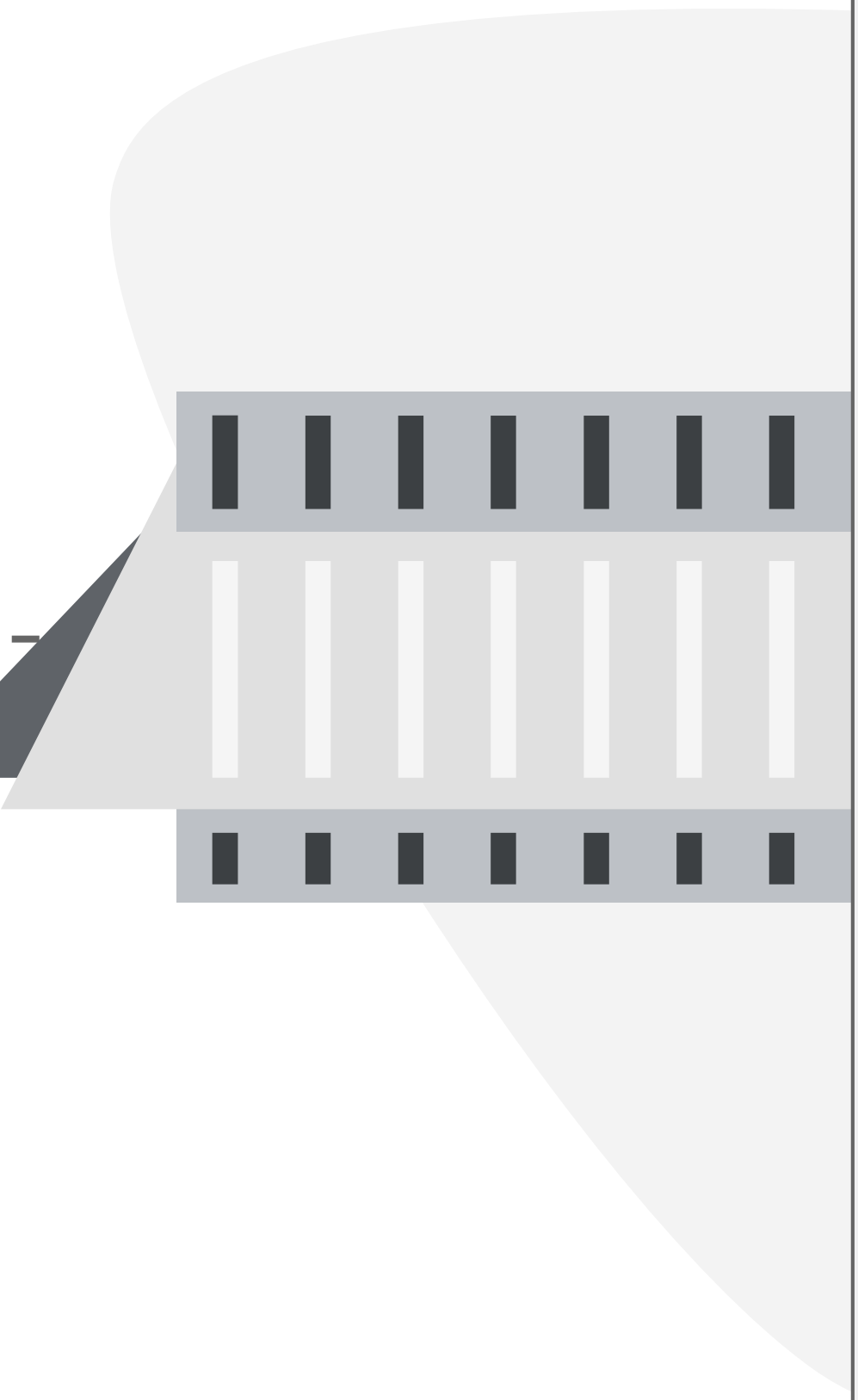
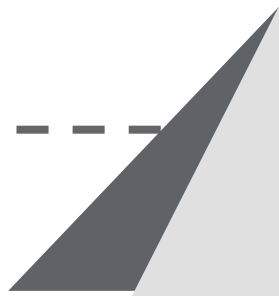


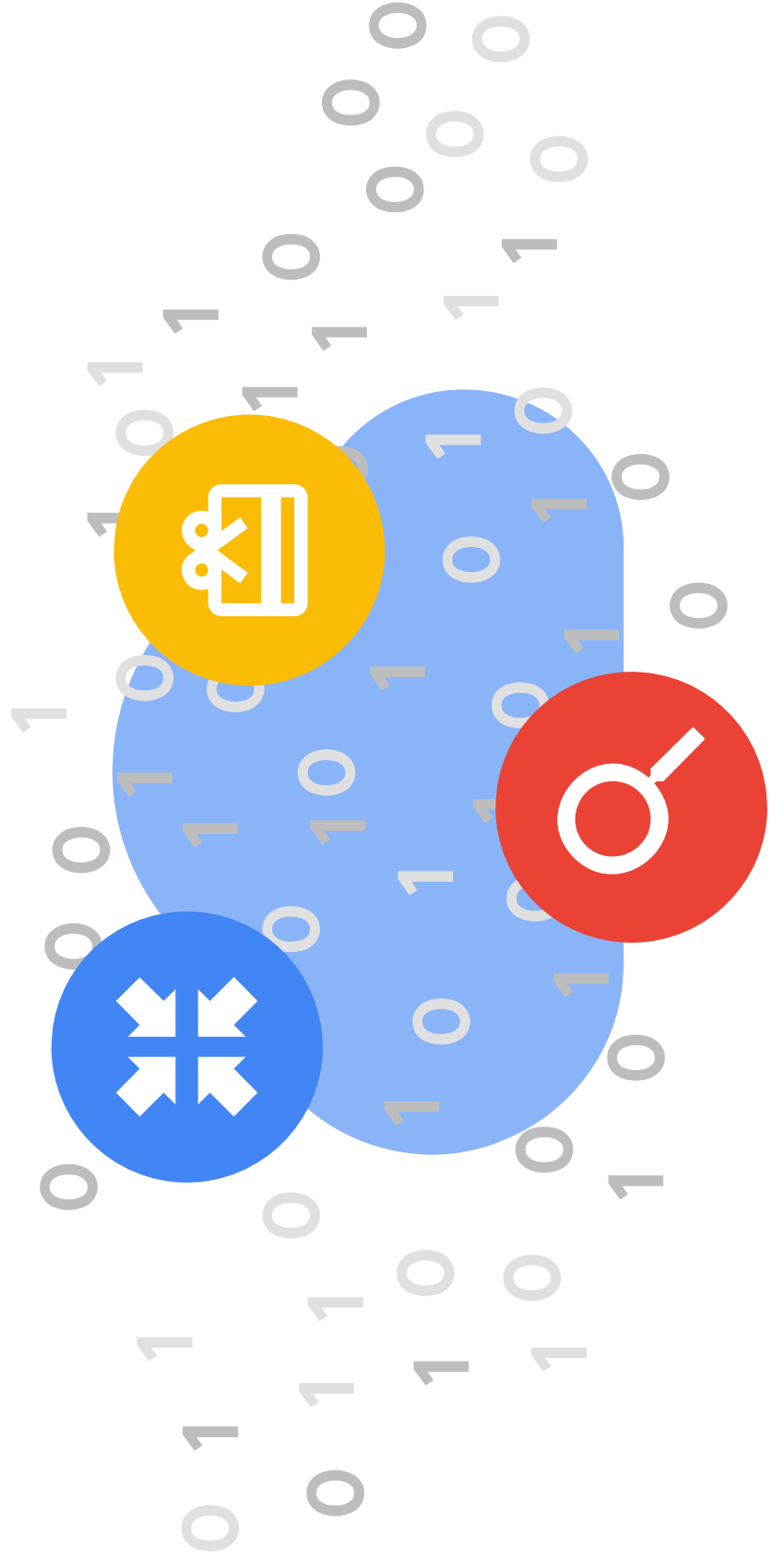
Large enterprises with traditional IT infrastructures face several challenges in leveraging the value of data. These limitations include: poor data quality, finding cost effective solutions, scaling resource capabilities, and deriving insights from historical and new data.



Google Cloud offers

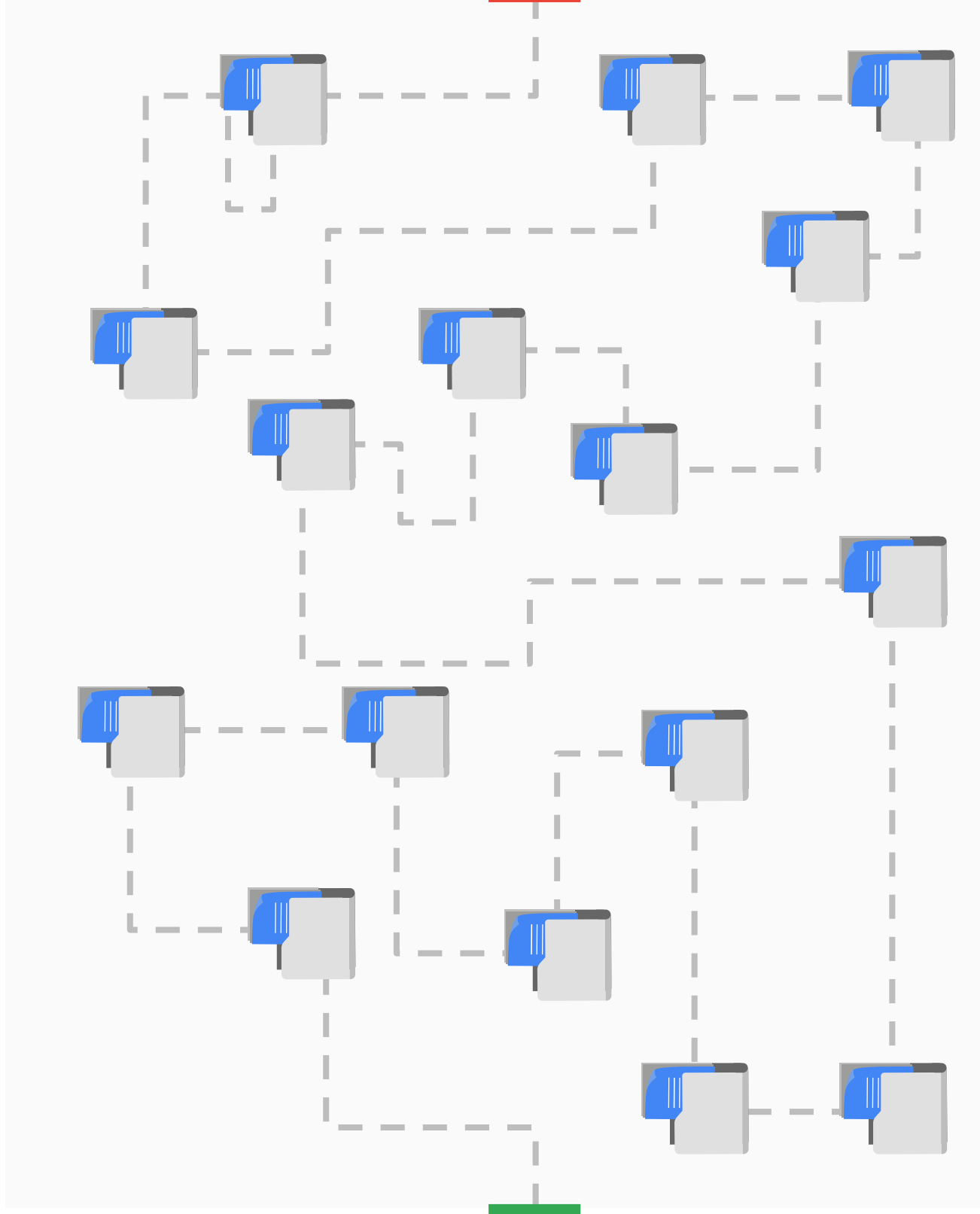


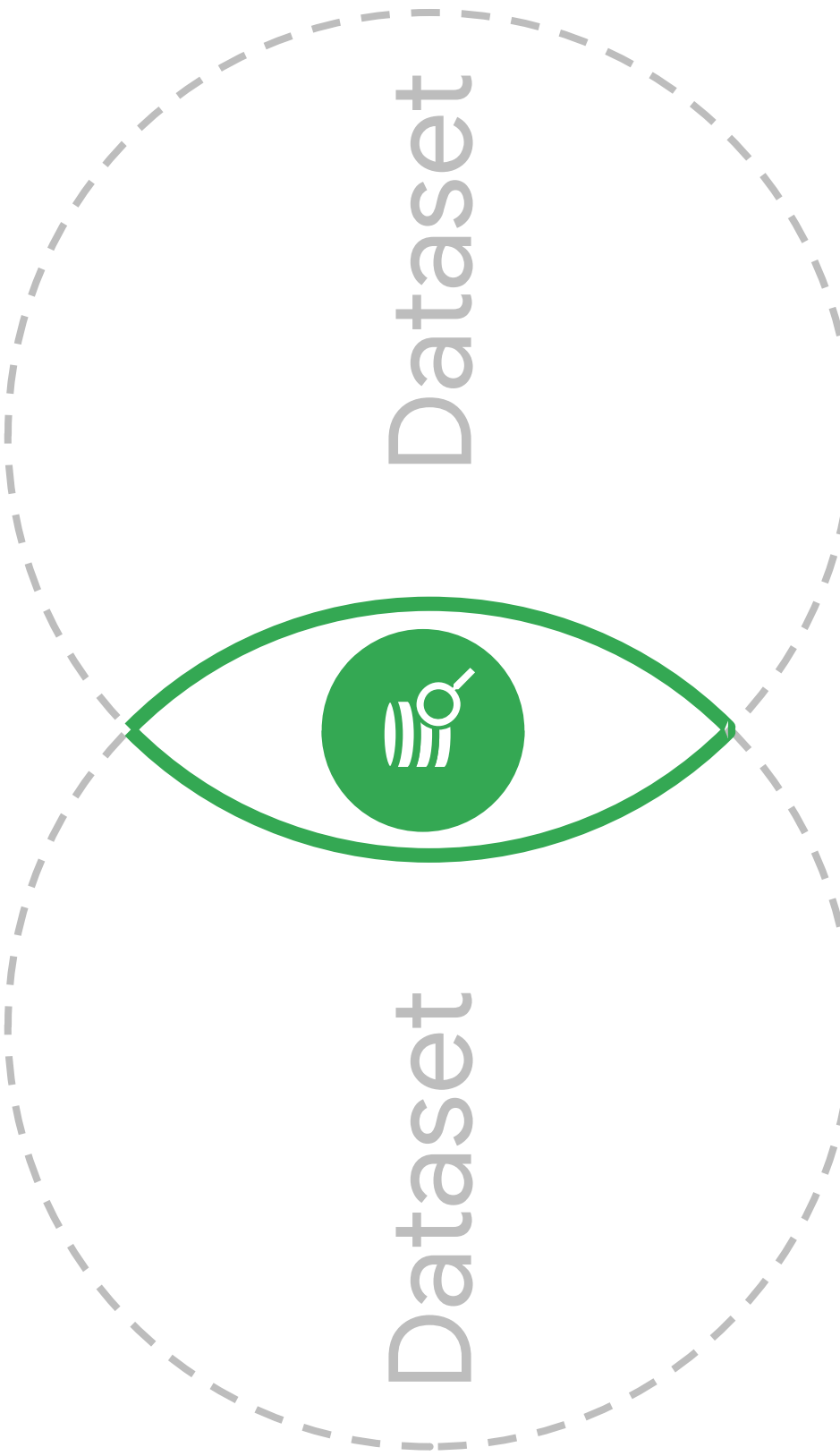




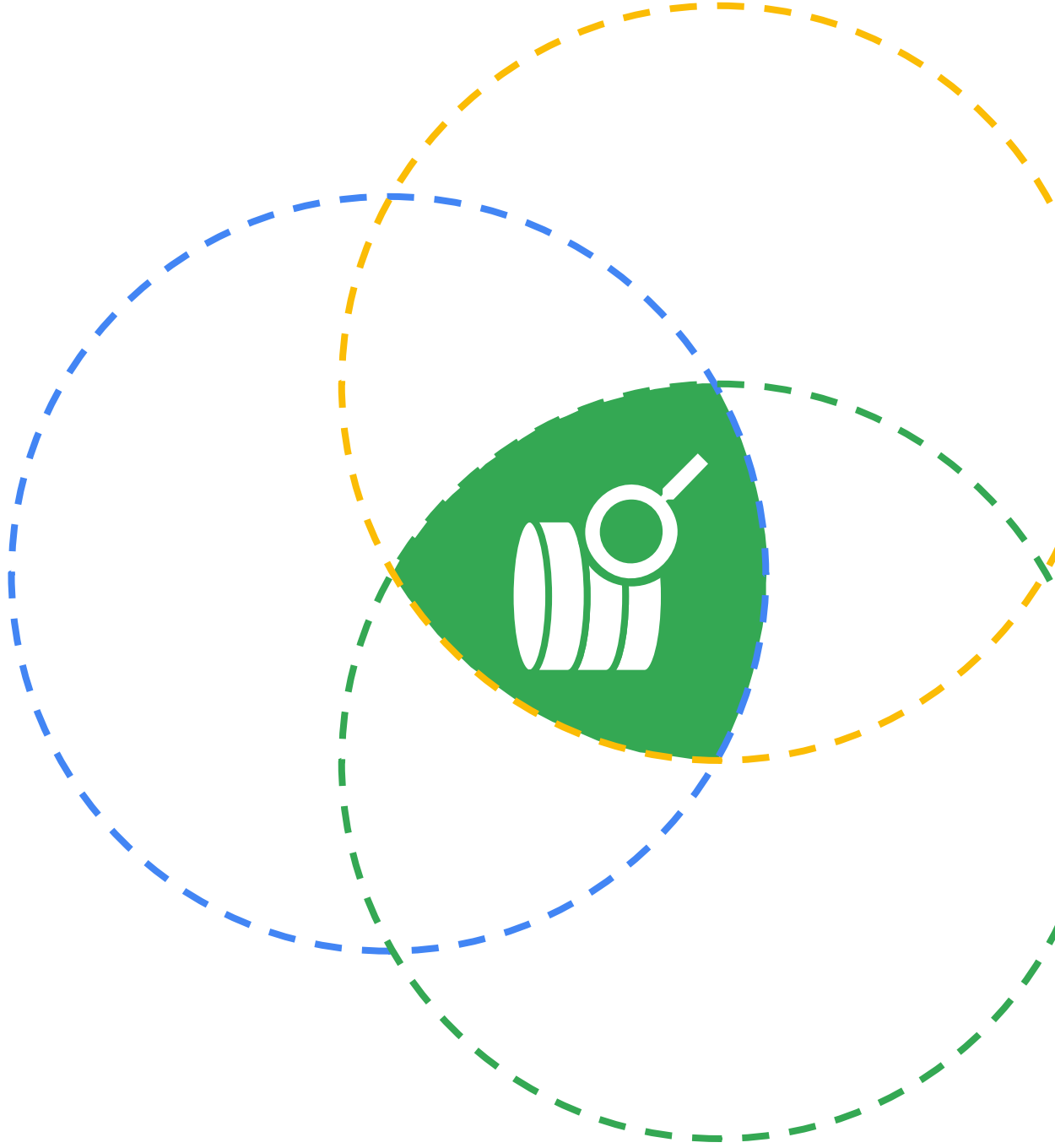
Start

Finish





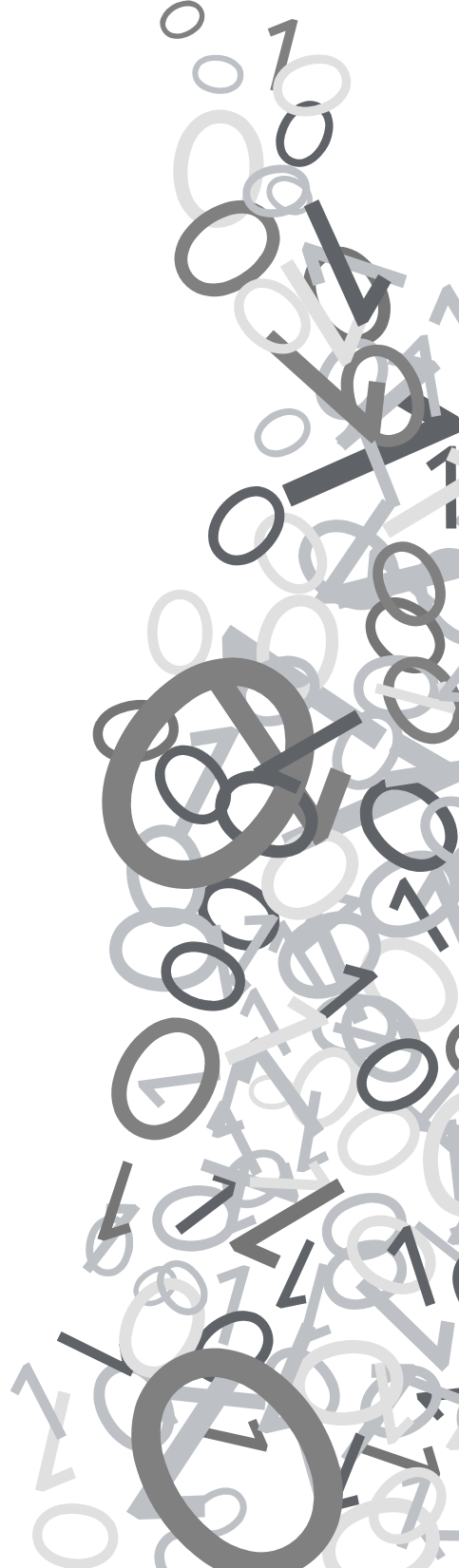
User data

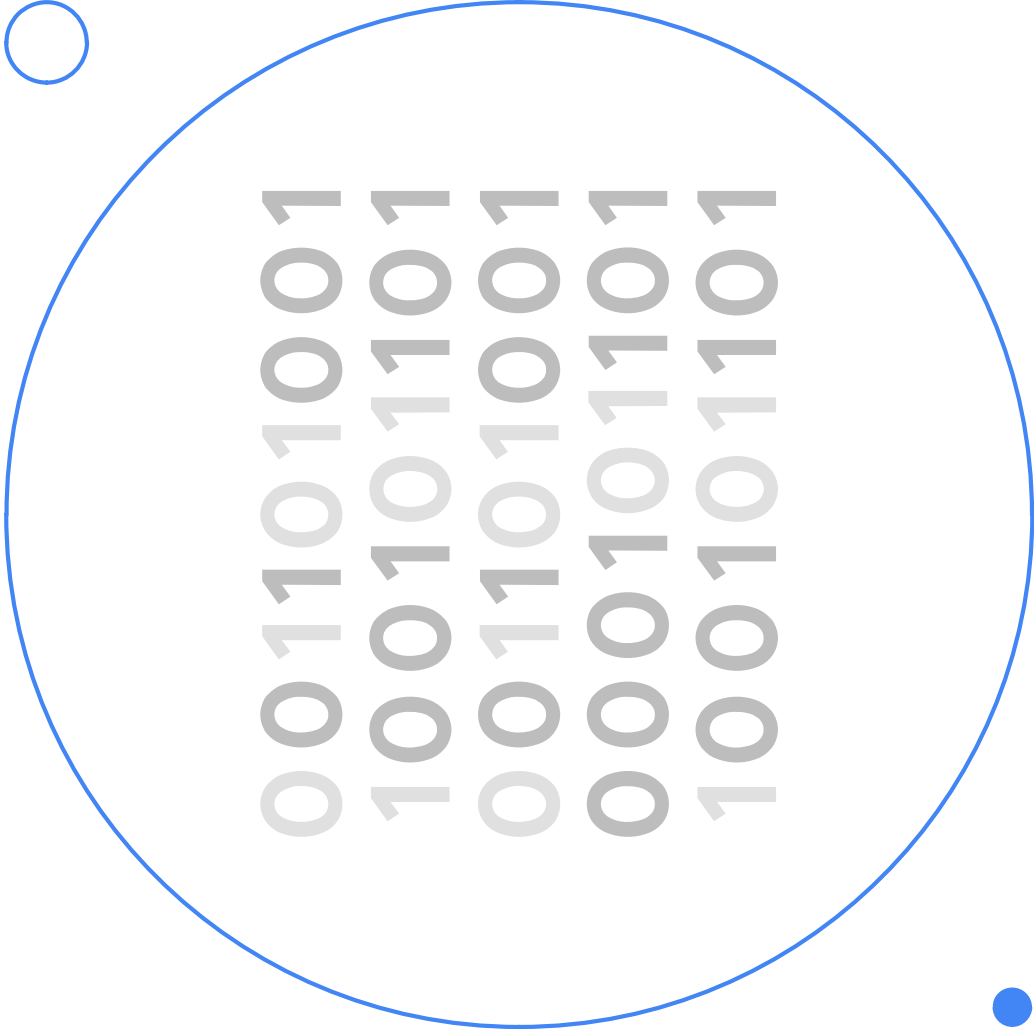


001101001
100101101
001101001
000101101
100101101

Structured

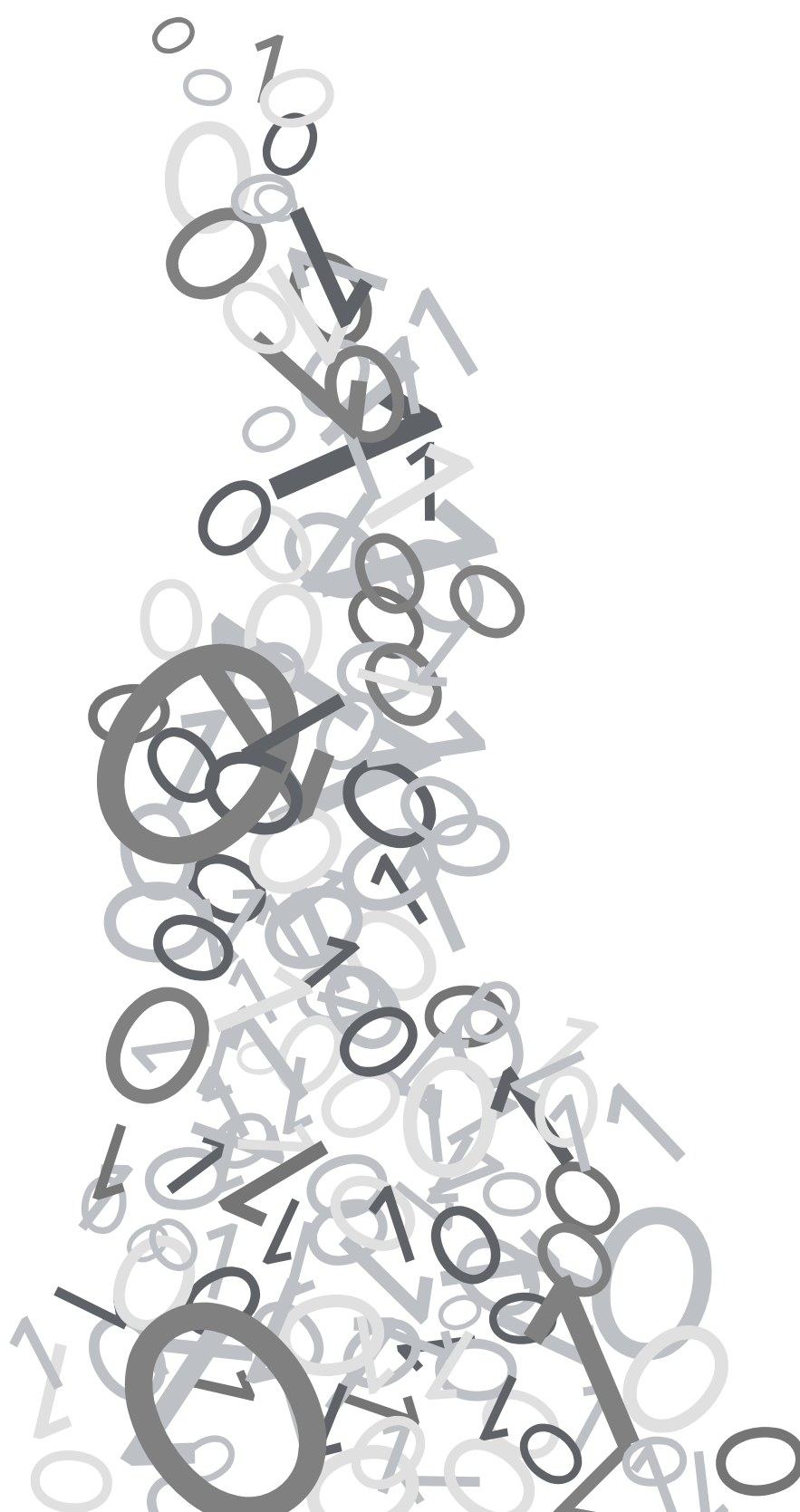
Unstructured





001101001
100101101
001101001
000101101
100101101





Some unstructured data can be stored in a format called a BLOB. This stands for **binary large object**. Images, audio, and multimedia files can all be stored as BLOBs.





00110100100110100
10010110100010110
00110100100110100



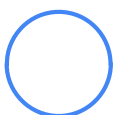


With the right cloud tools, businesses can extract value from unstructured data by using APIs to create structure.

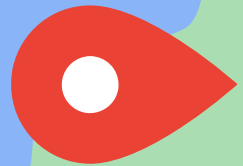
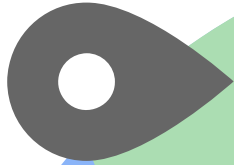
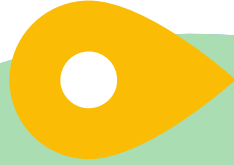
APIs are a set of functions that integrate different platforms, with different types of data, so that new insights can be uncovered.

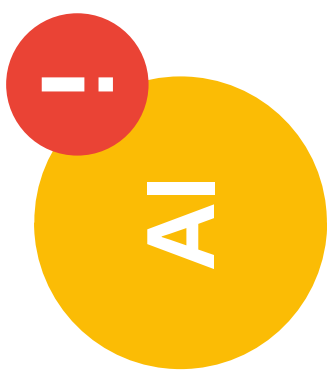
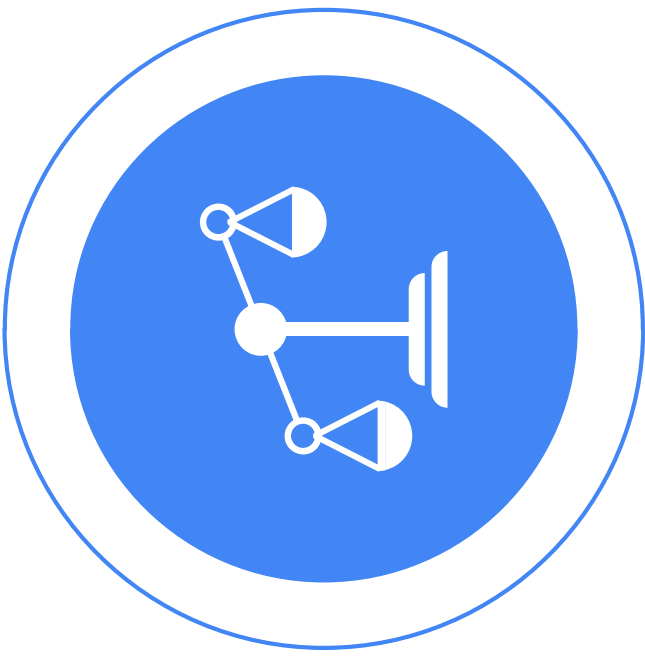


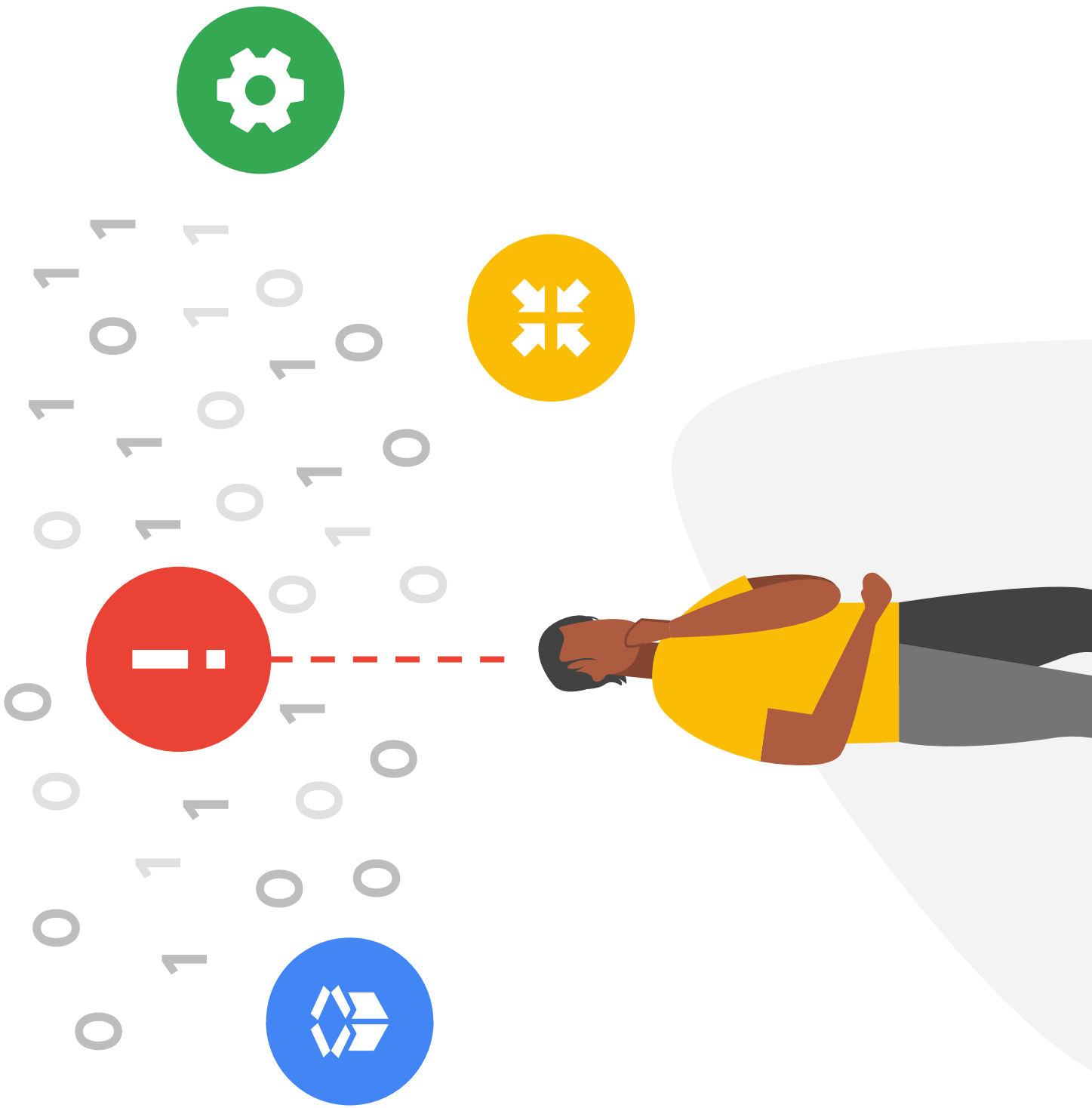










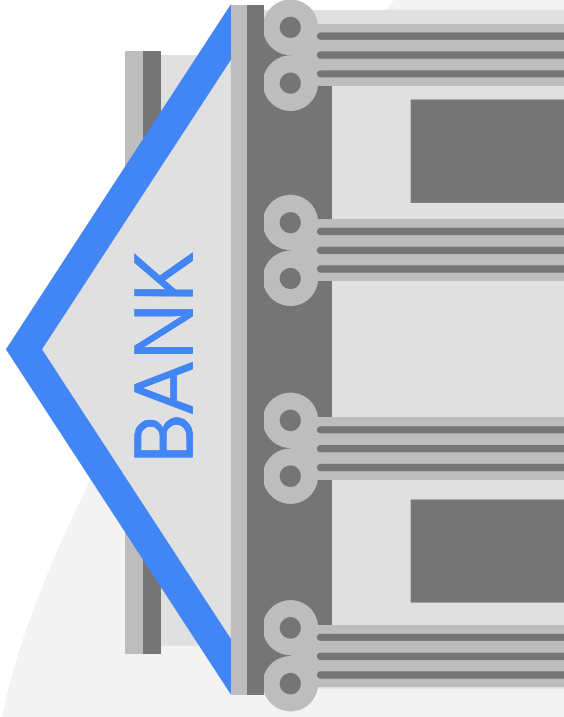
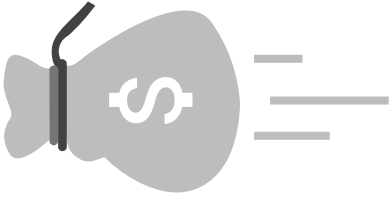


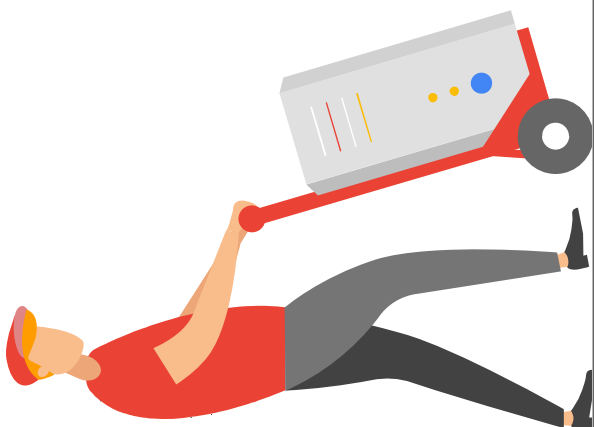
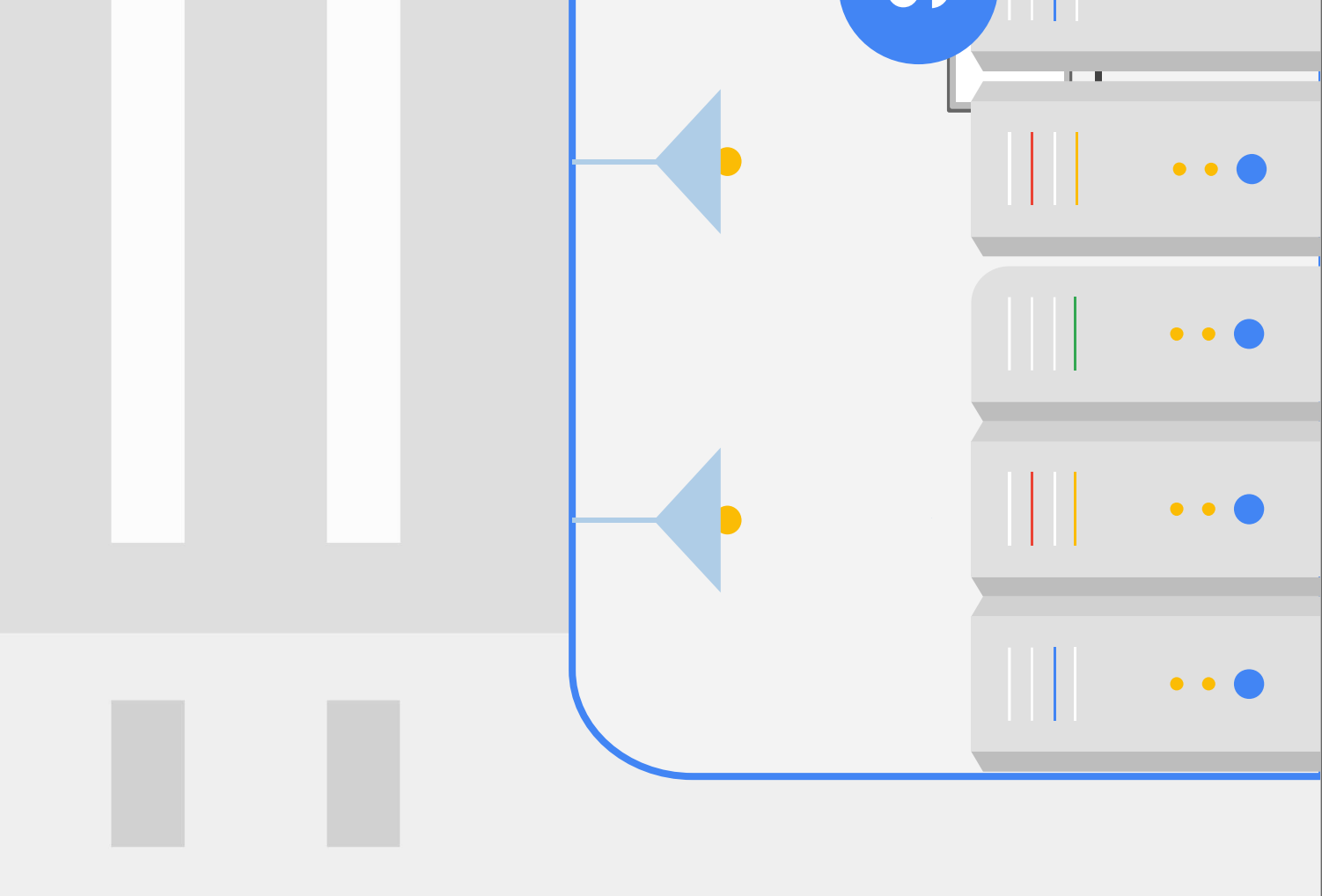


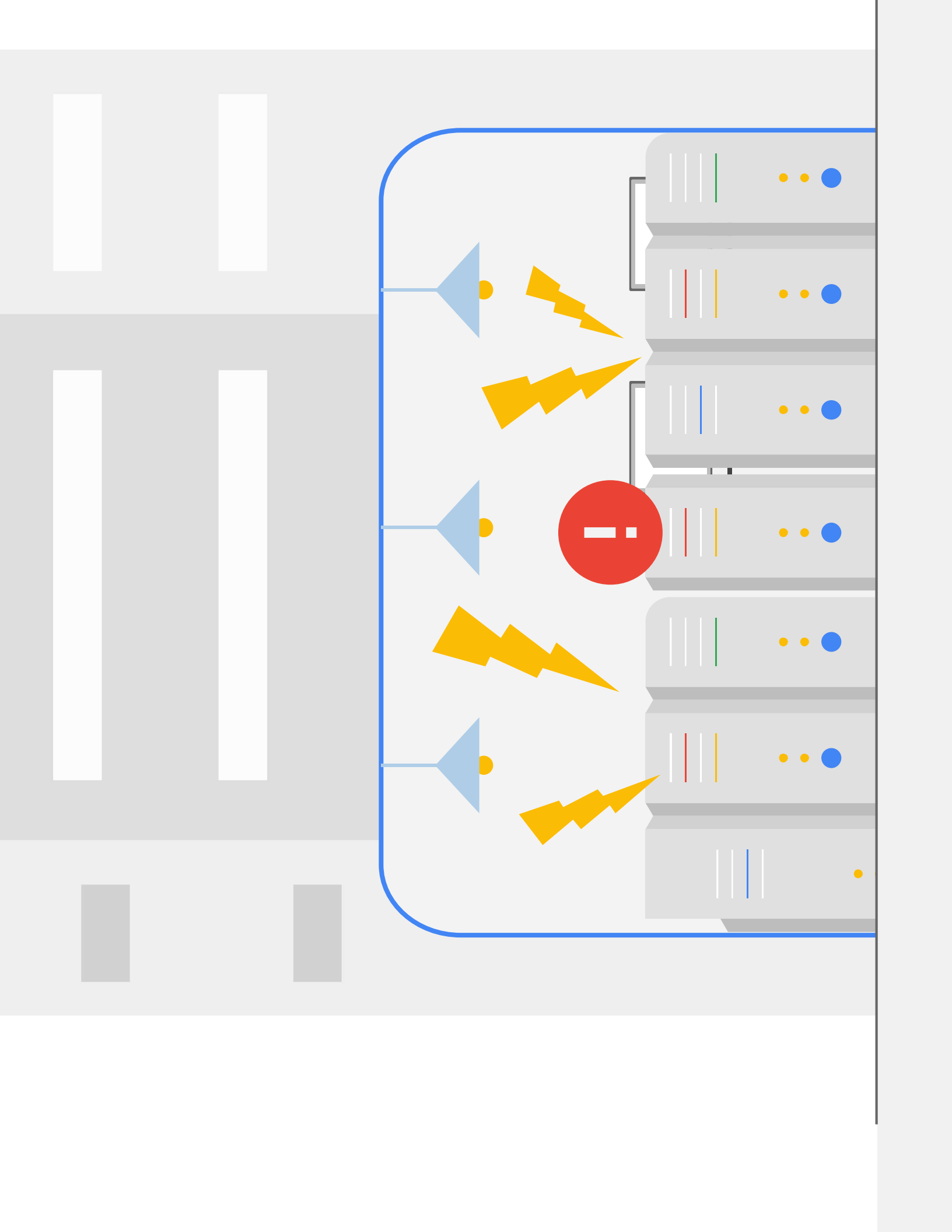
Google Cloud

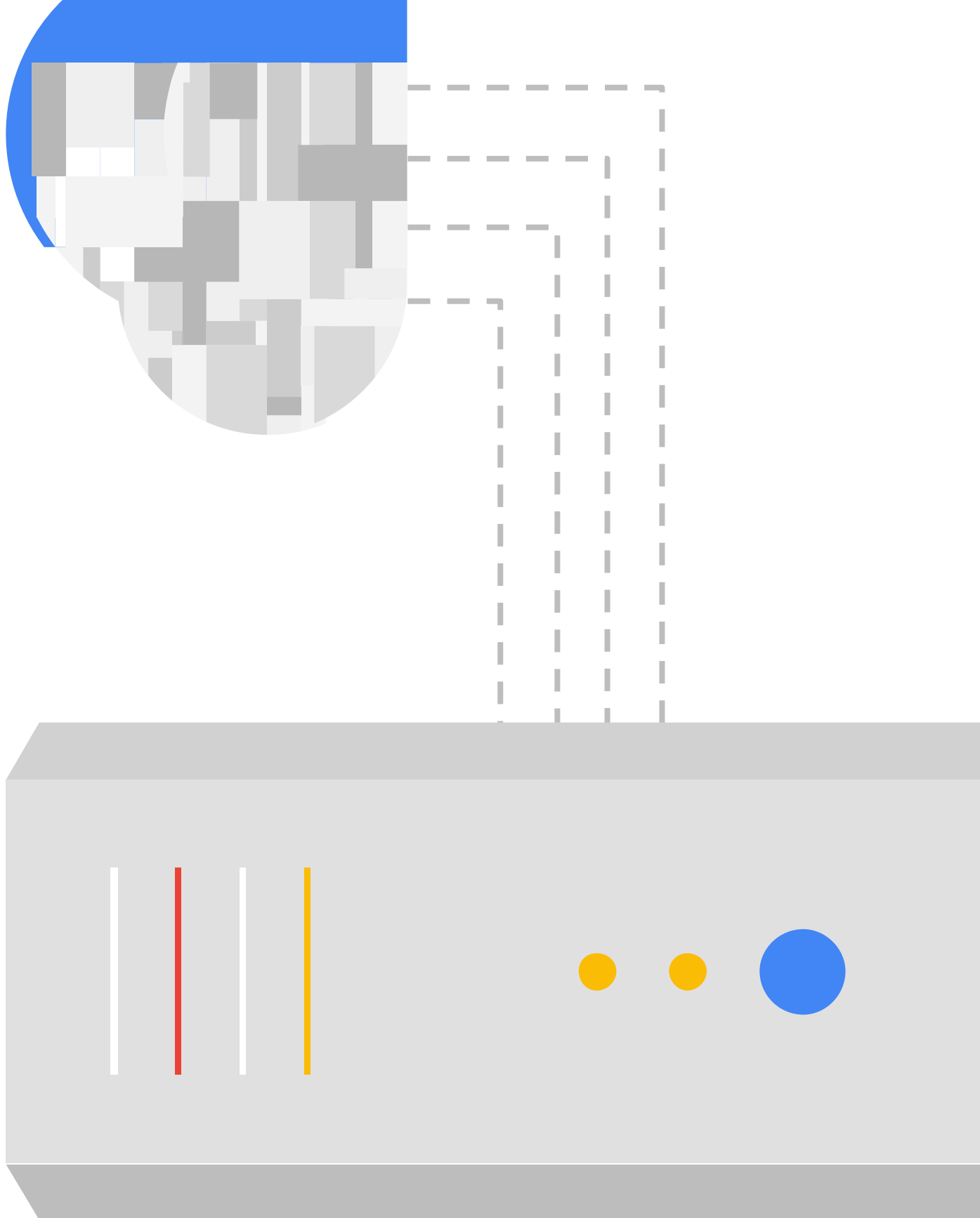
Module 2: Student Slides

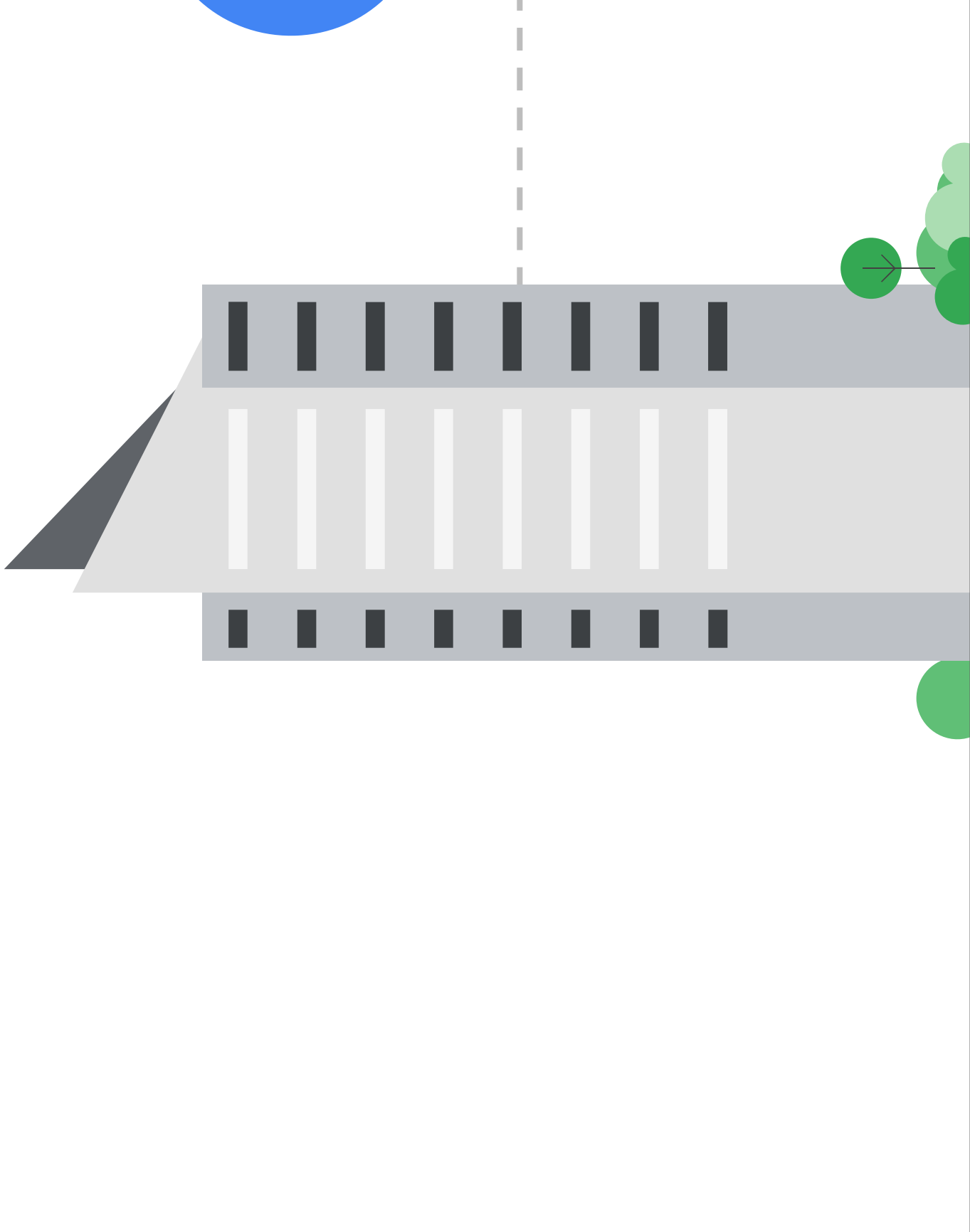
Data Consolidation
and Analytics

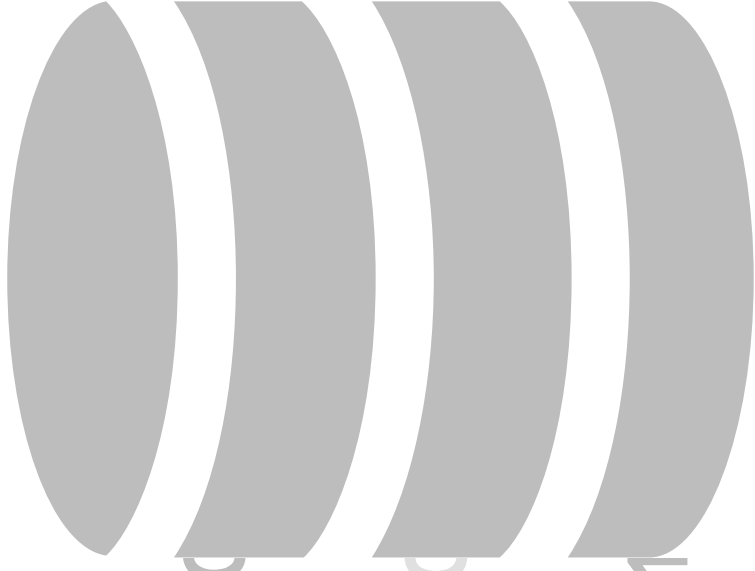








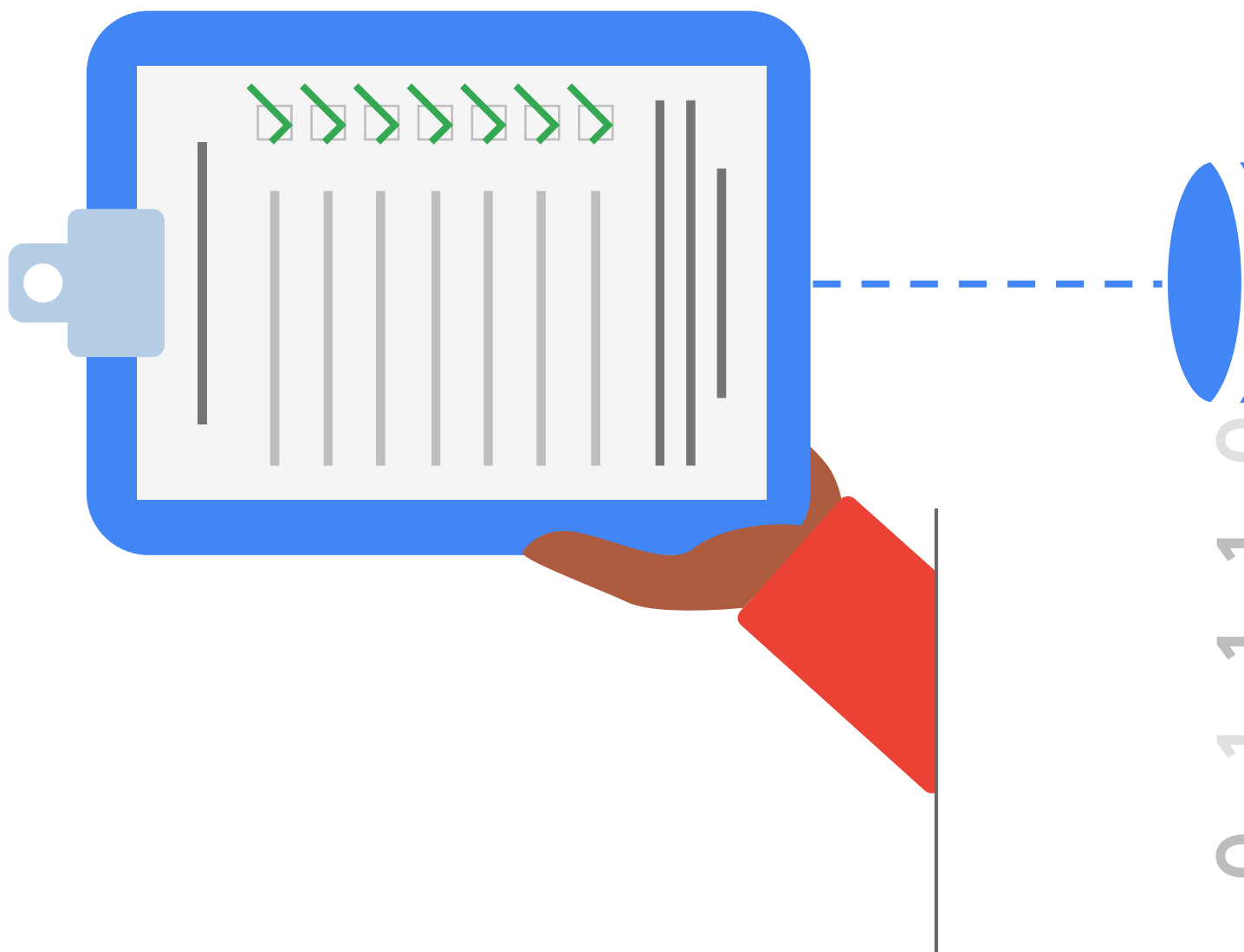


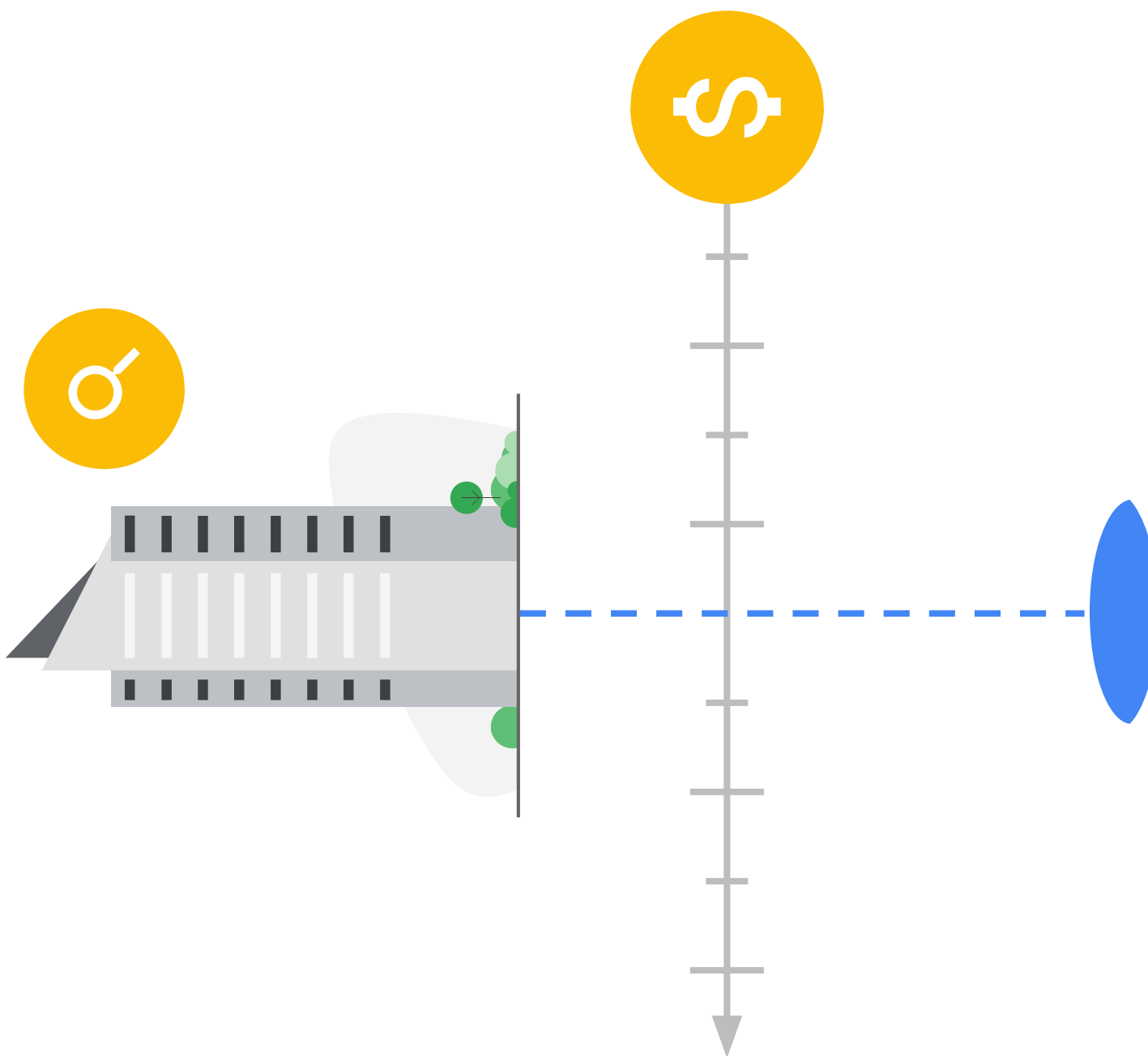


0 0 1 1 1 0
0 0 1 1 0
1 1 0 0 1 1
1 0 0 1 1 1
0 0 1 1 0
0 1 1 0 0 1

Data management priorities

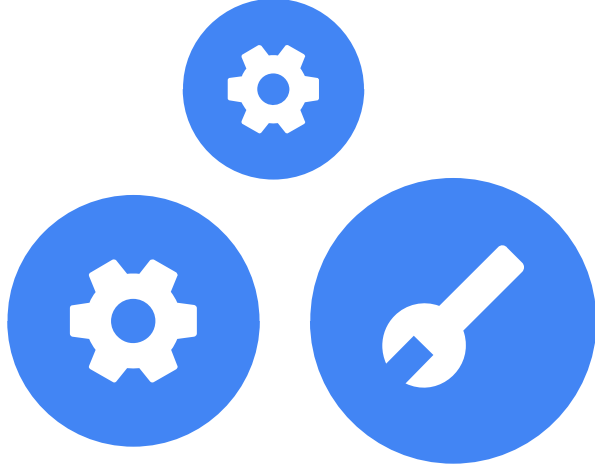


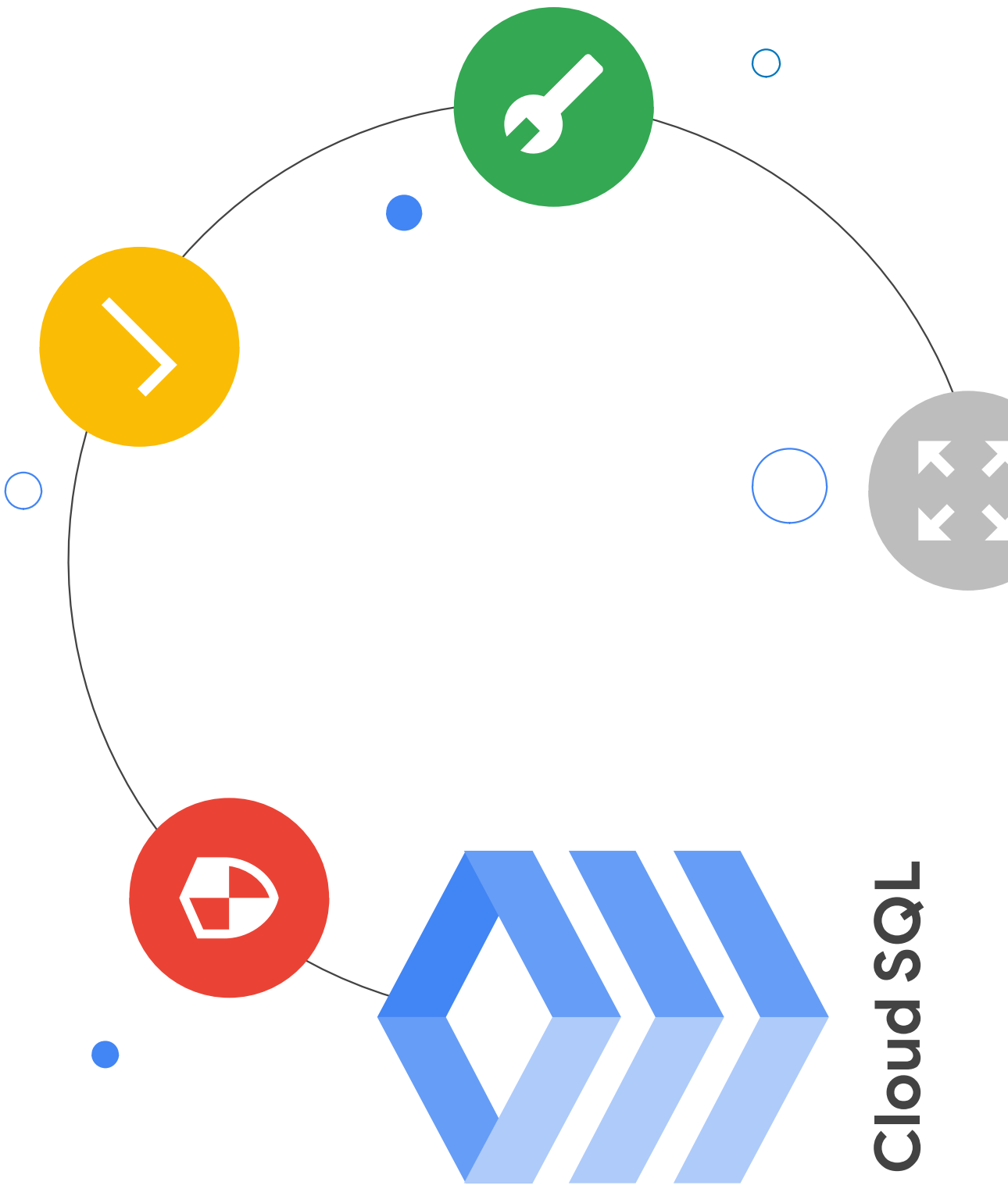






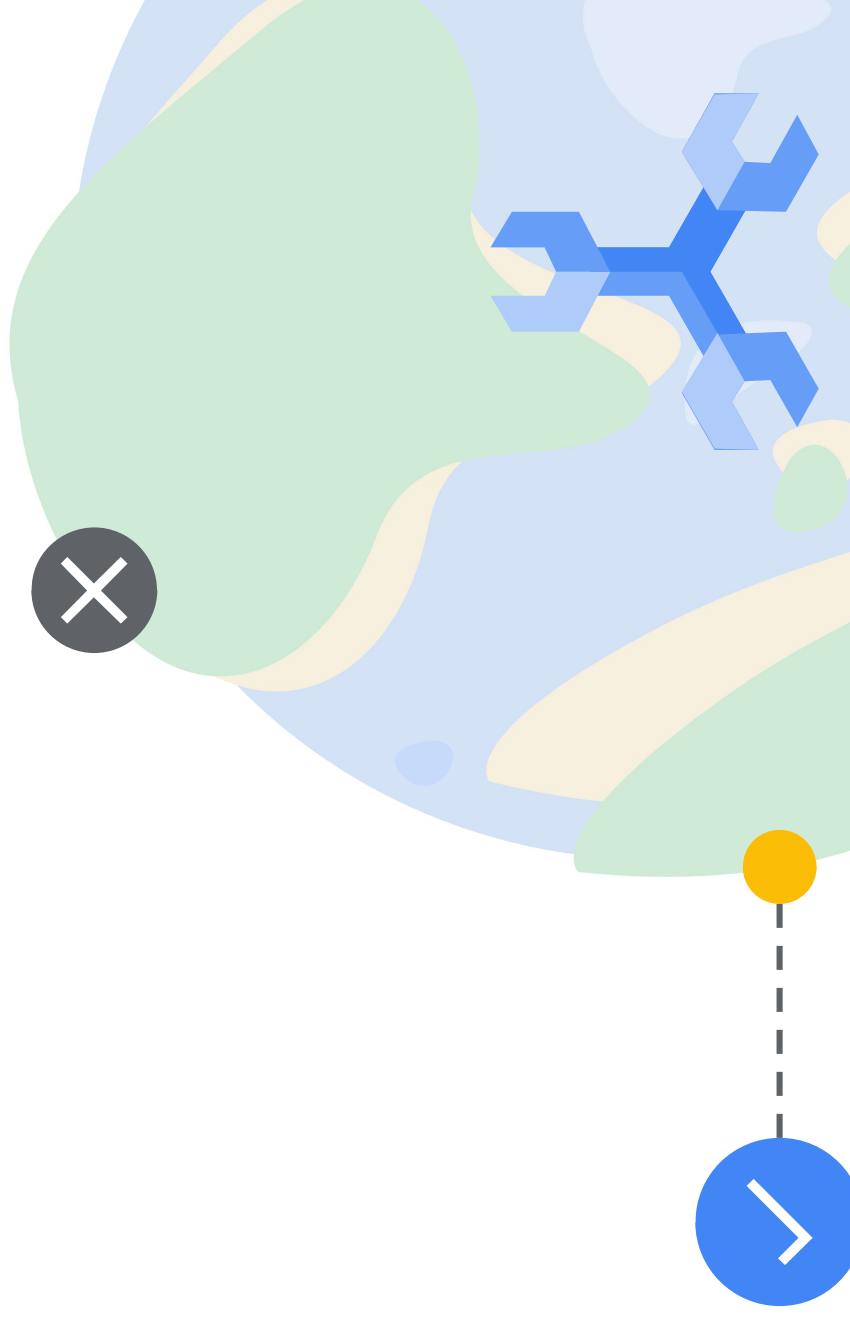
Cloud SQL

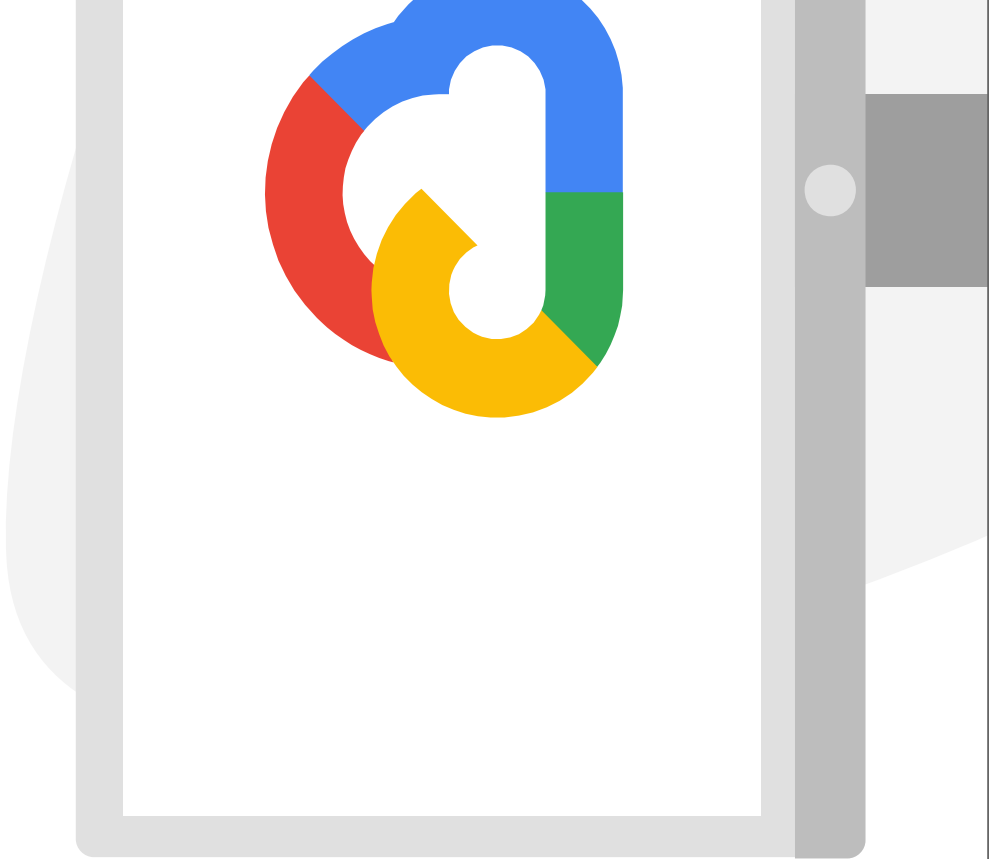




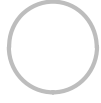
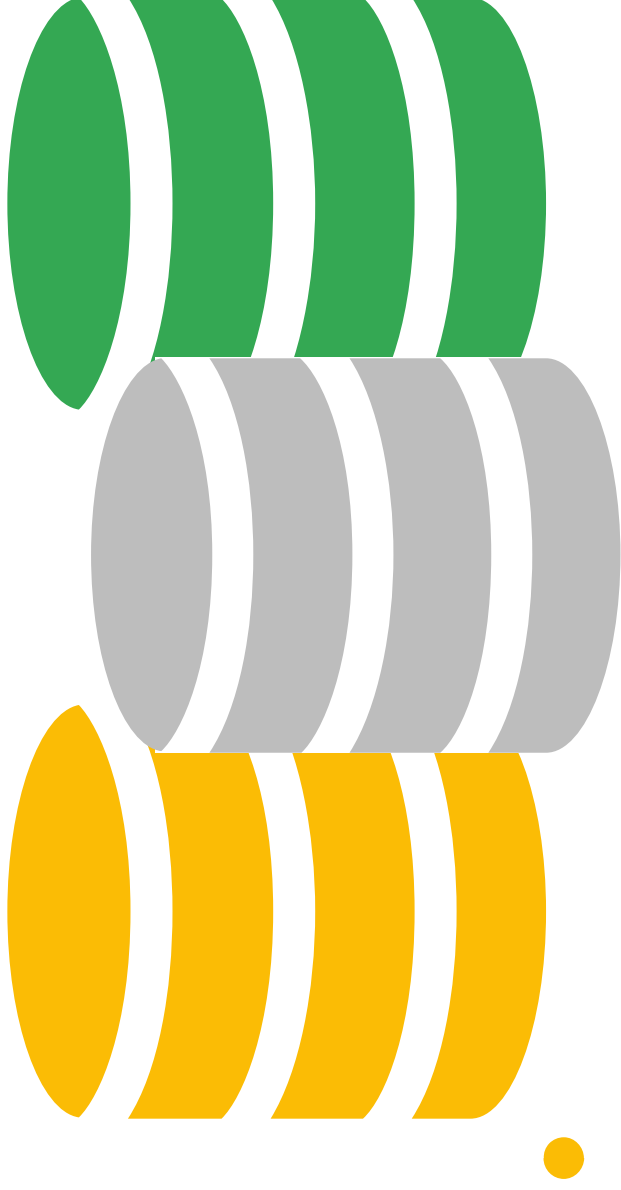
What is Cloud Spanner?

It's another fully managed database service, and it's designed so that data is automatically and instantly copied across regions. When an organization goes offline, the organization's data can still be retrieved for



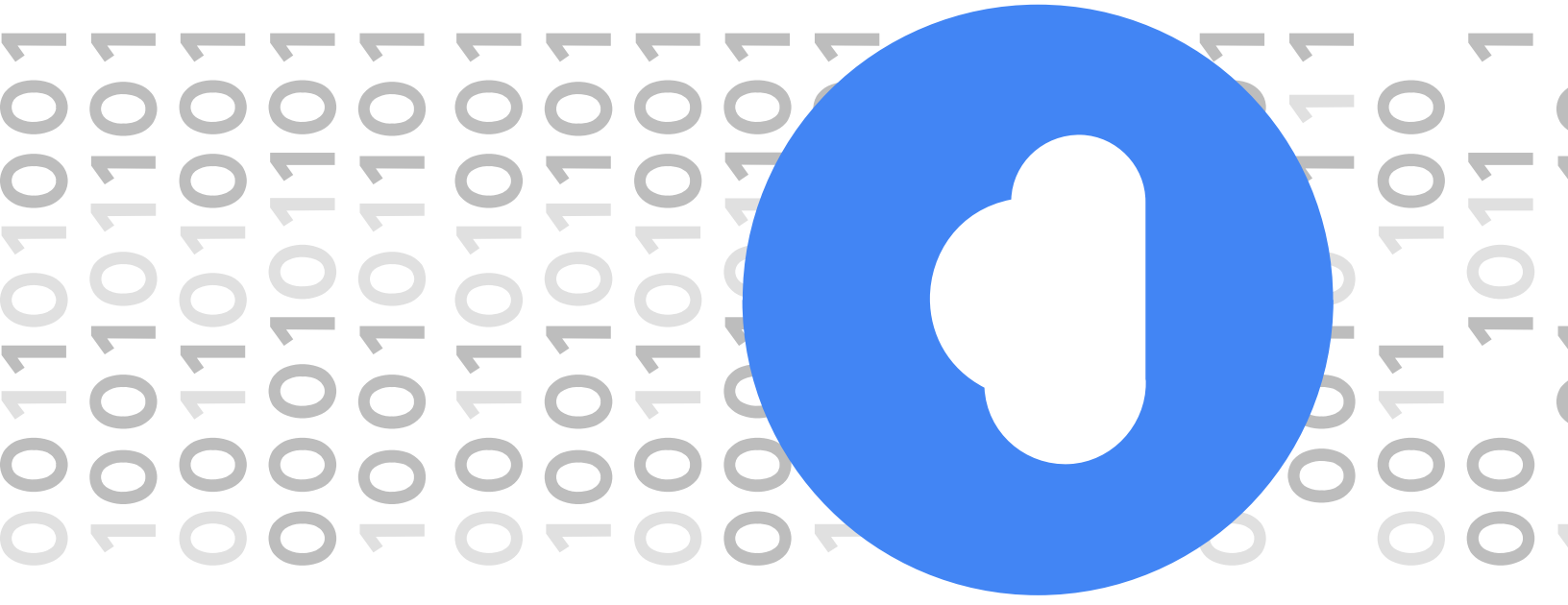


Database

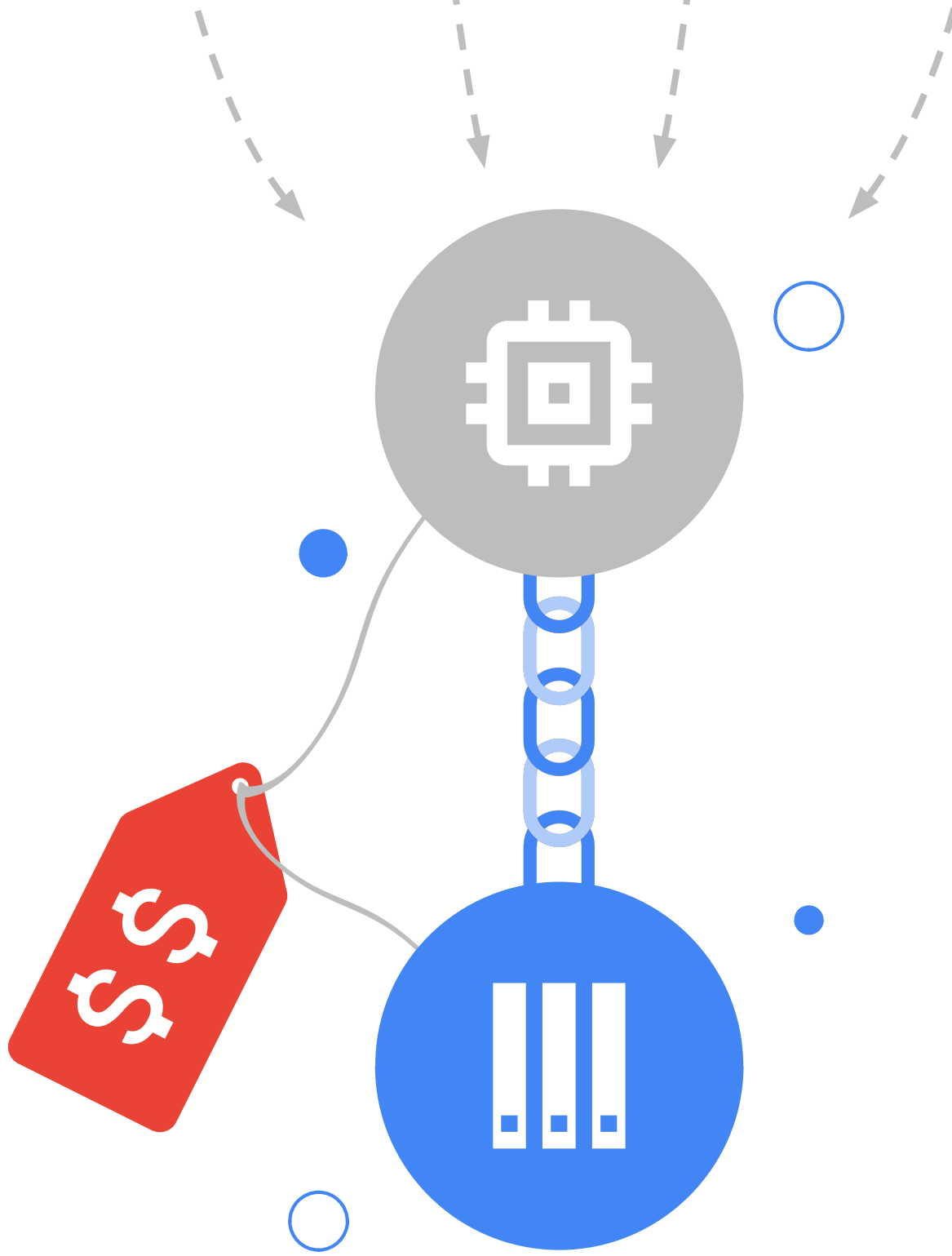


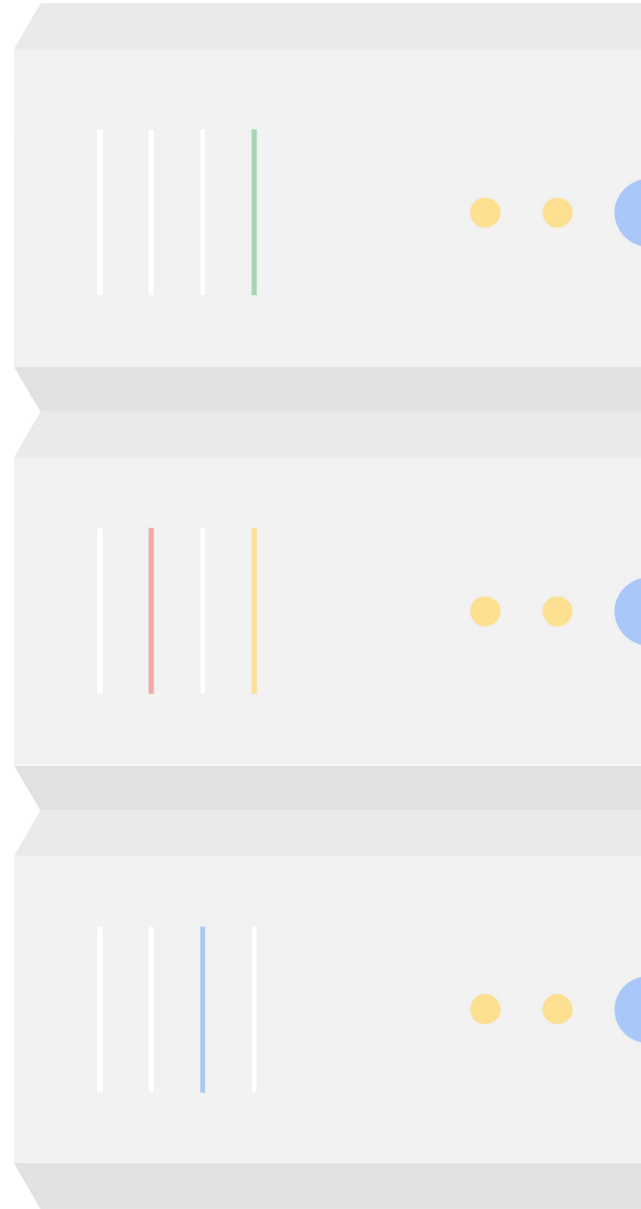


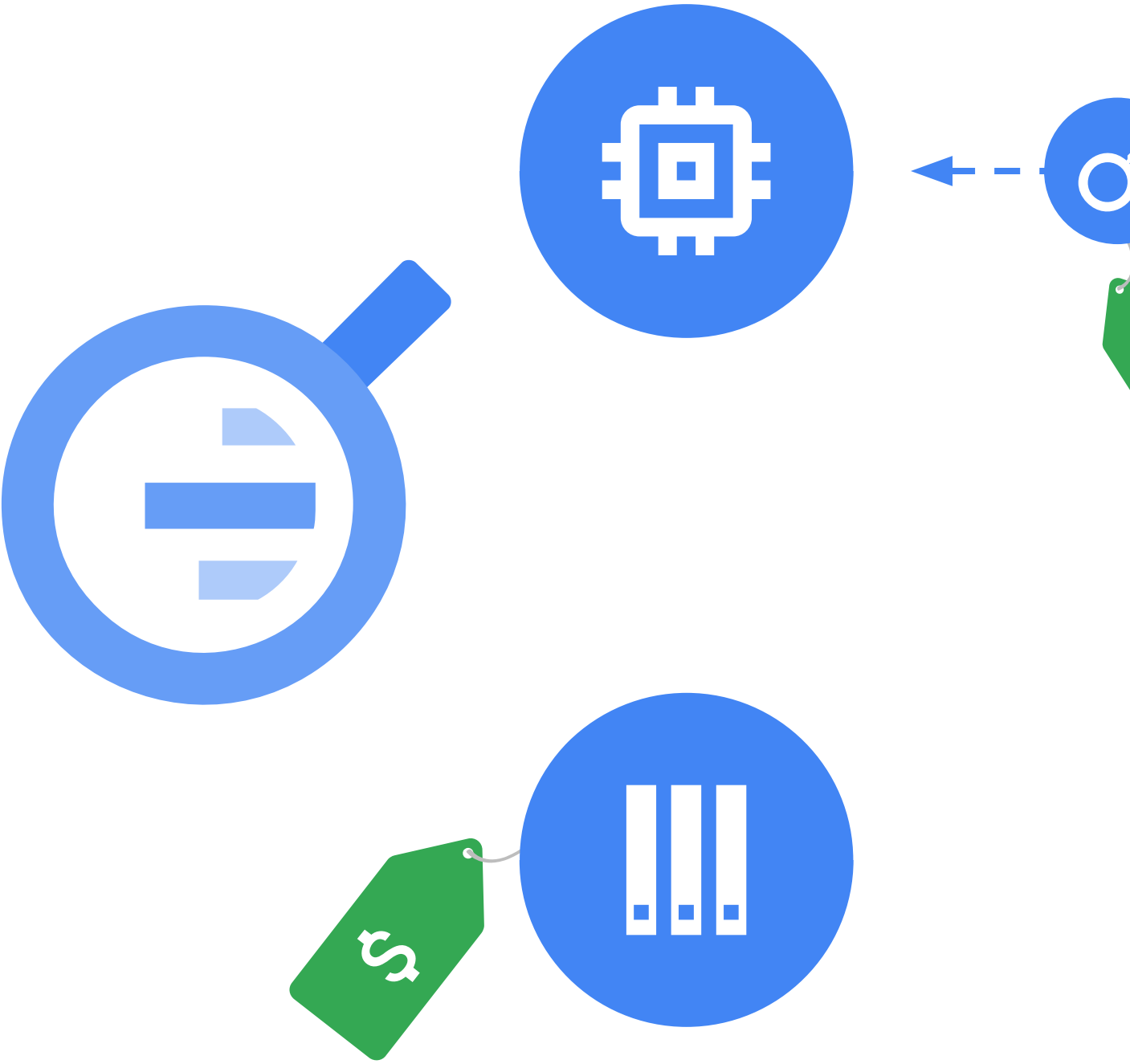


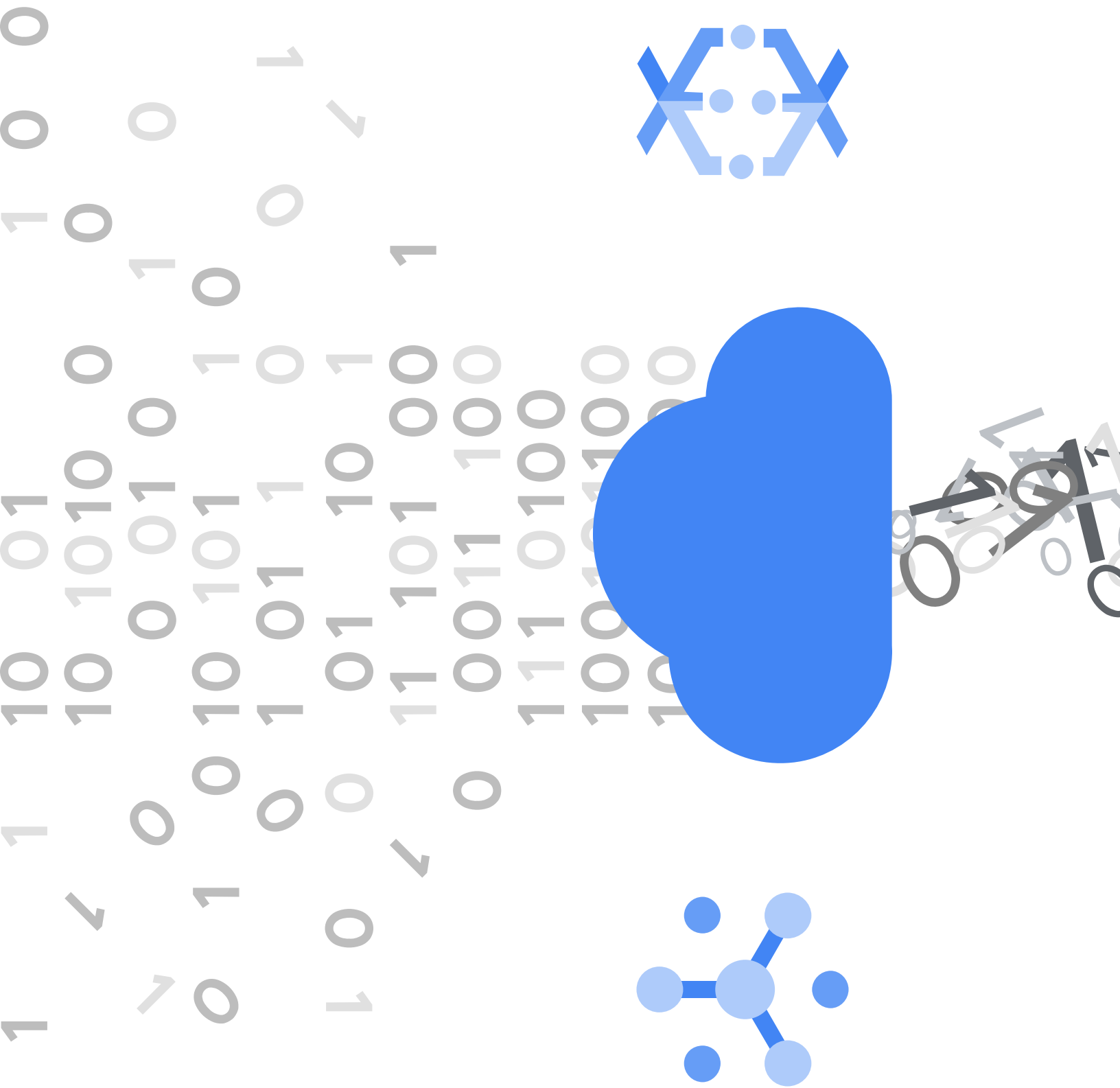


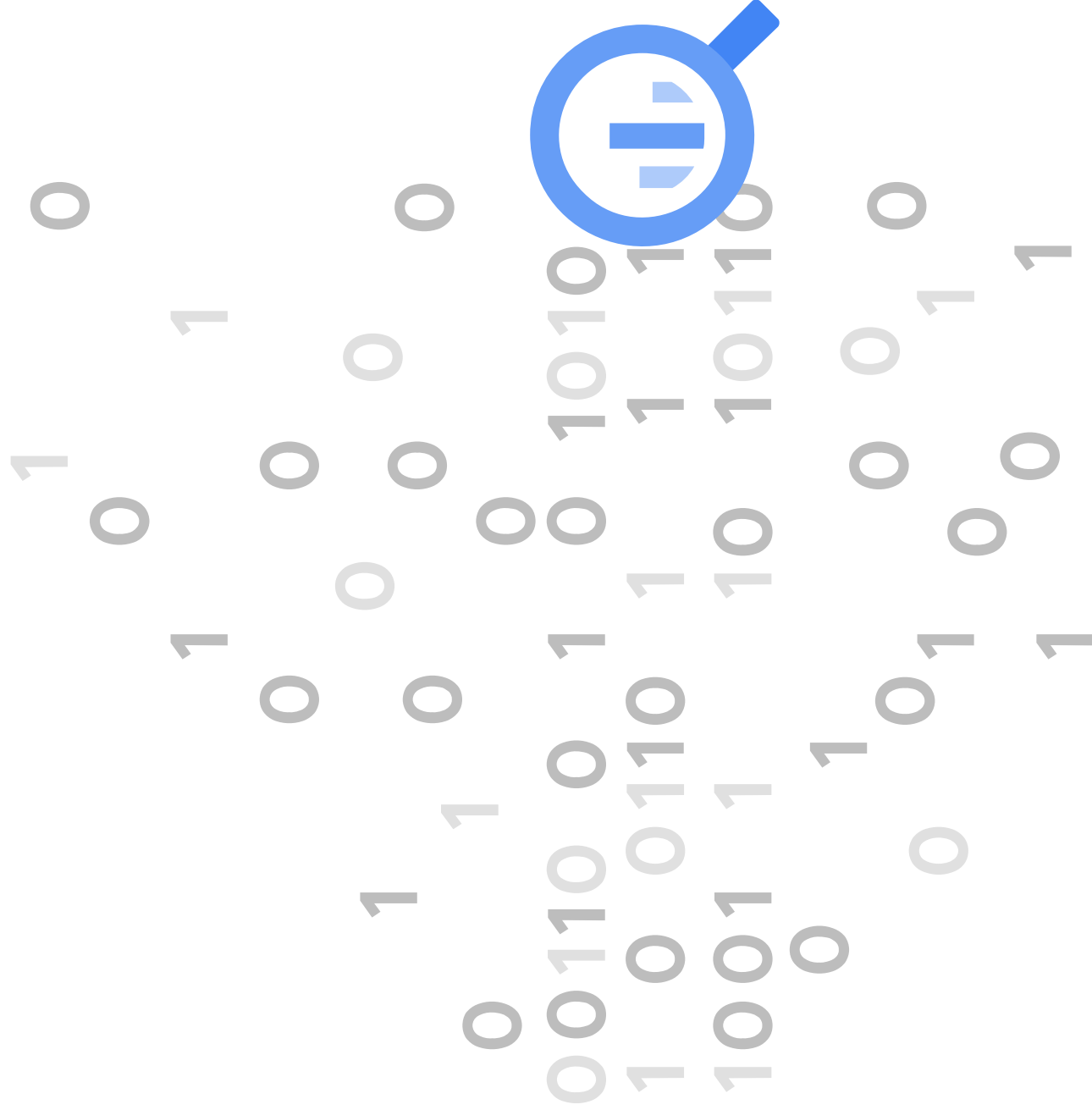






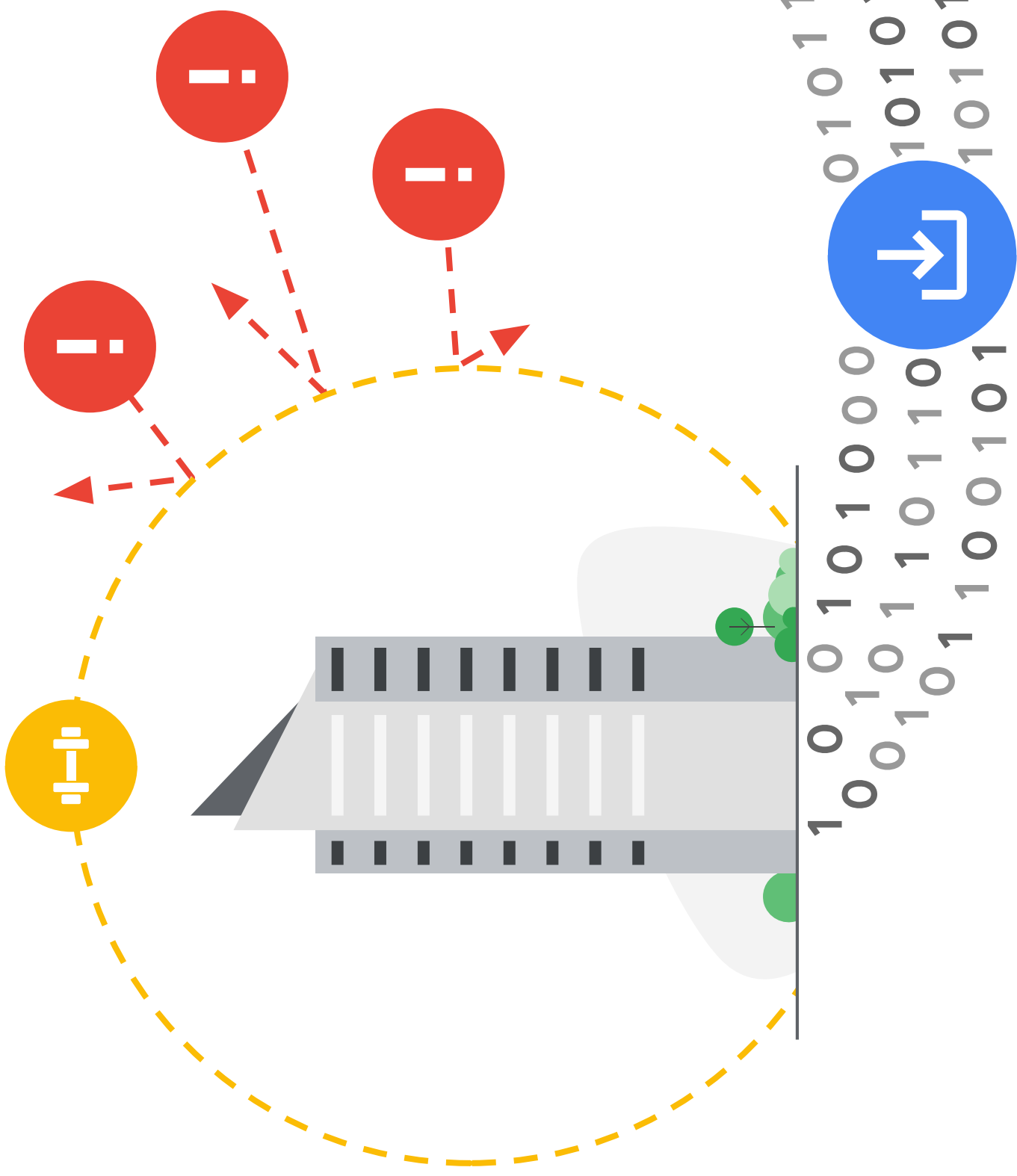


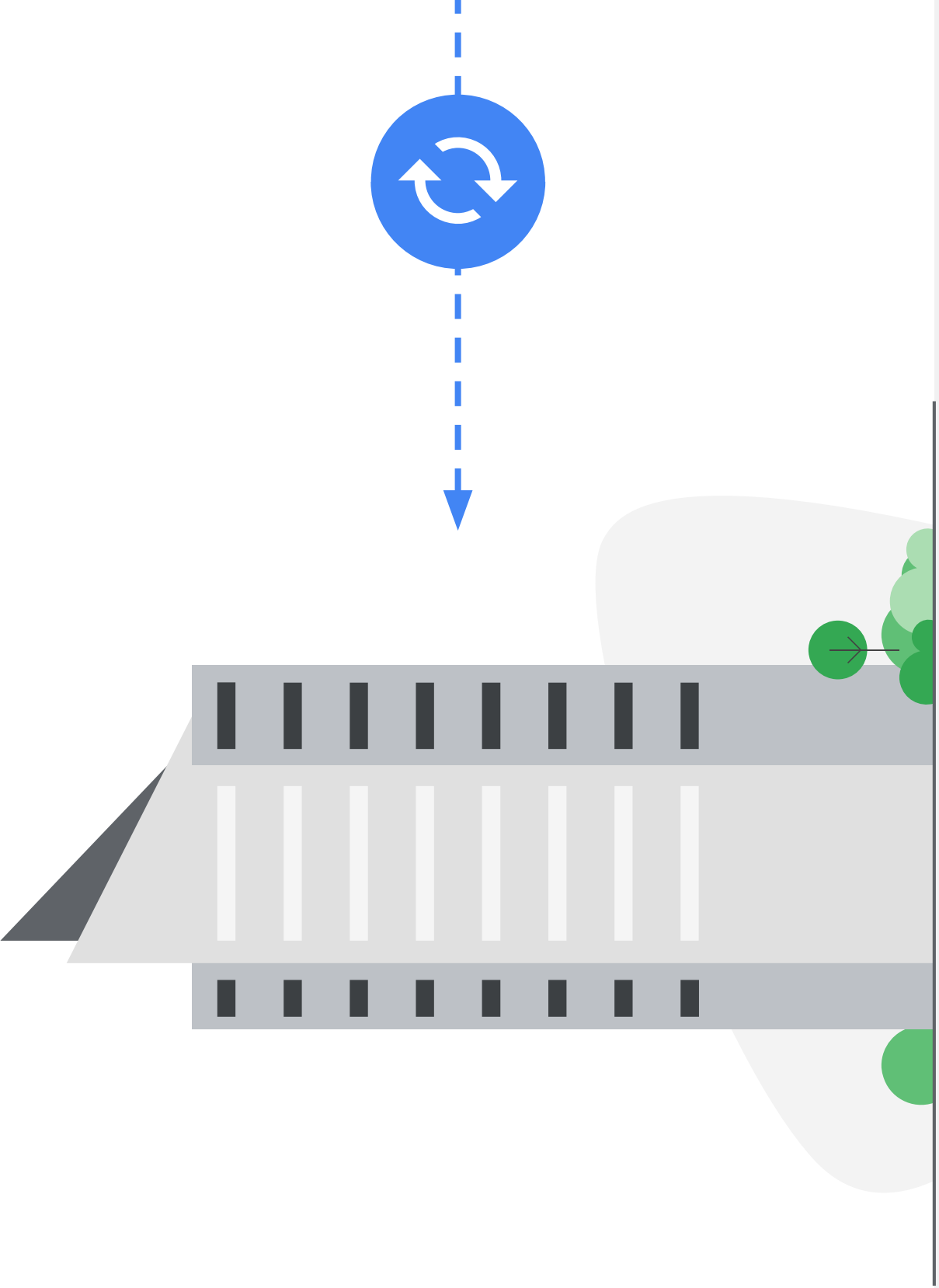




What is a data lake?

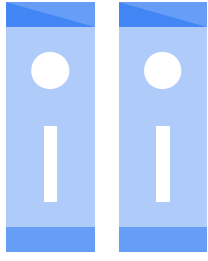
Data lakes are a repository for raw data and tend to serve many purposes.



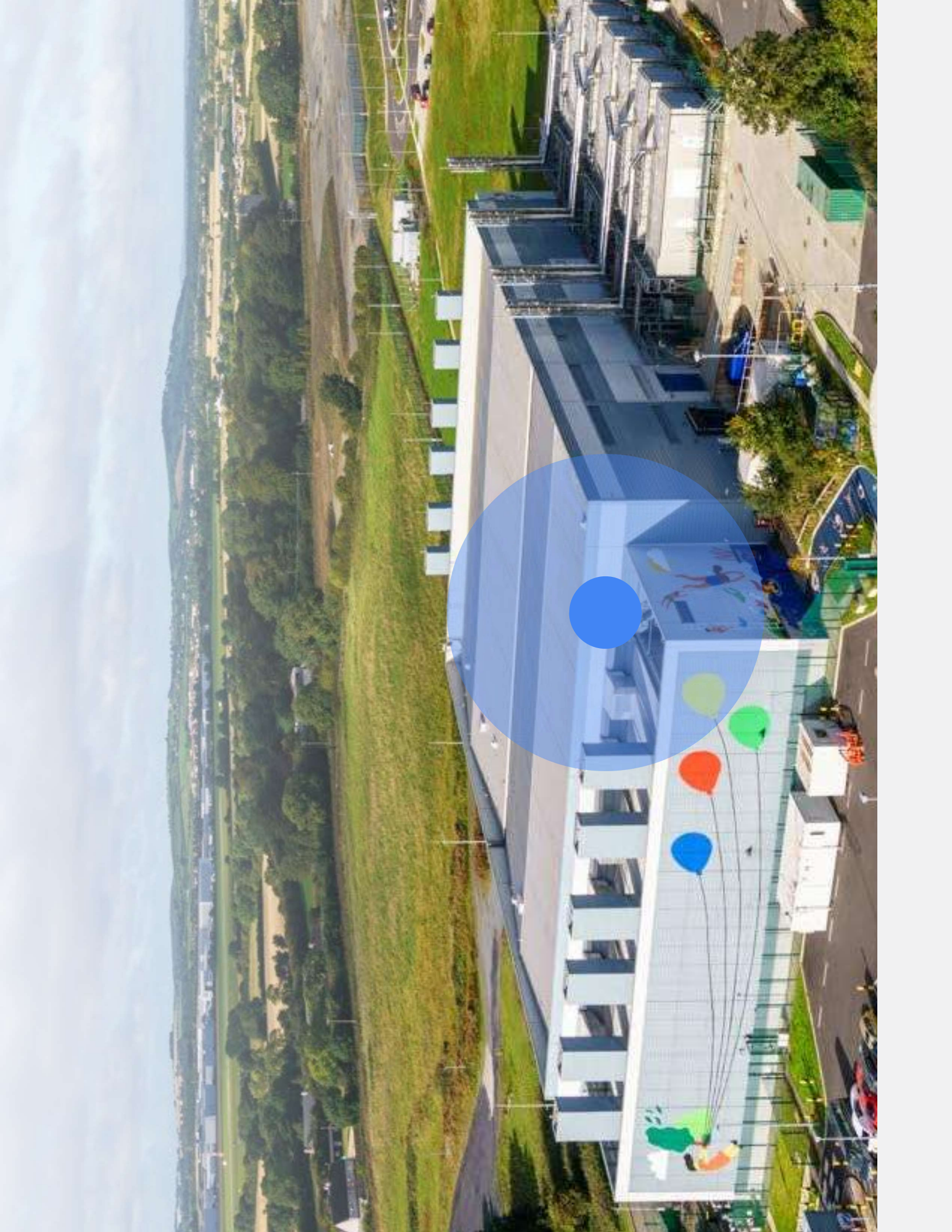


Cloud Storage Benefits

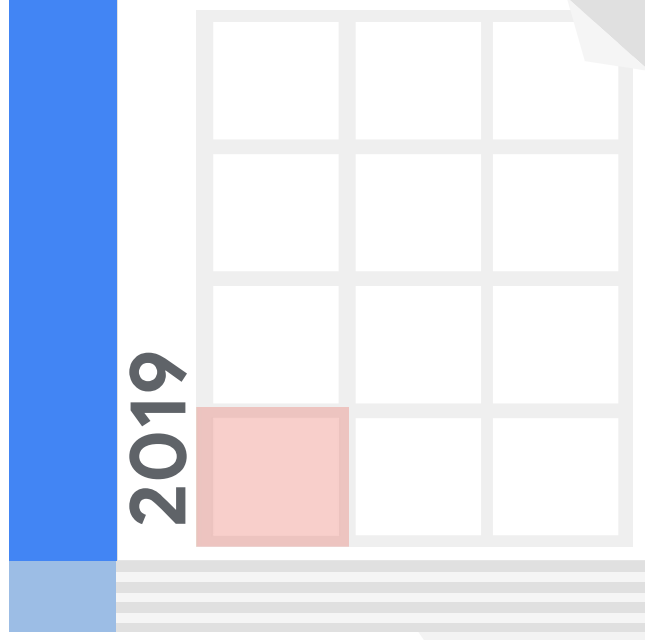




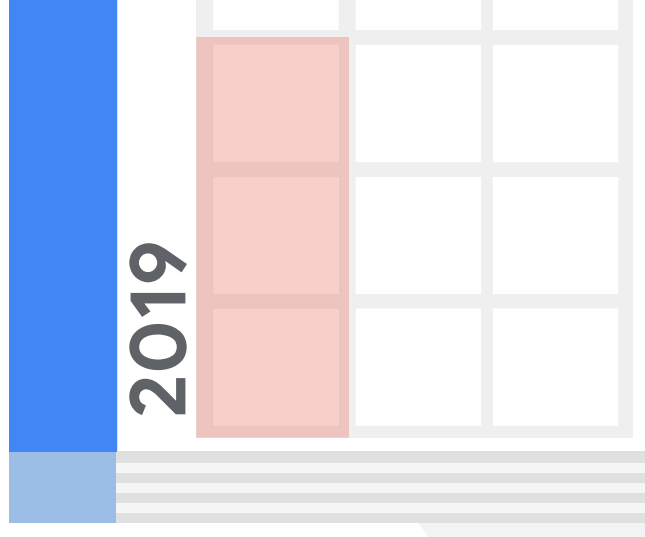
Multi-regional storage

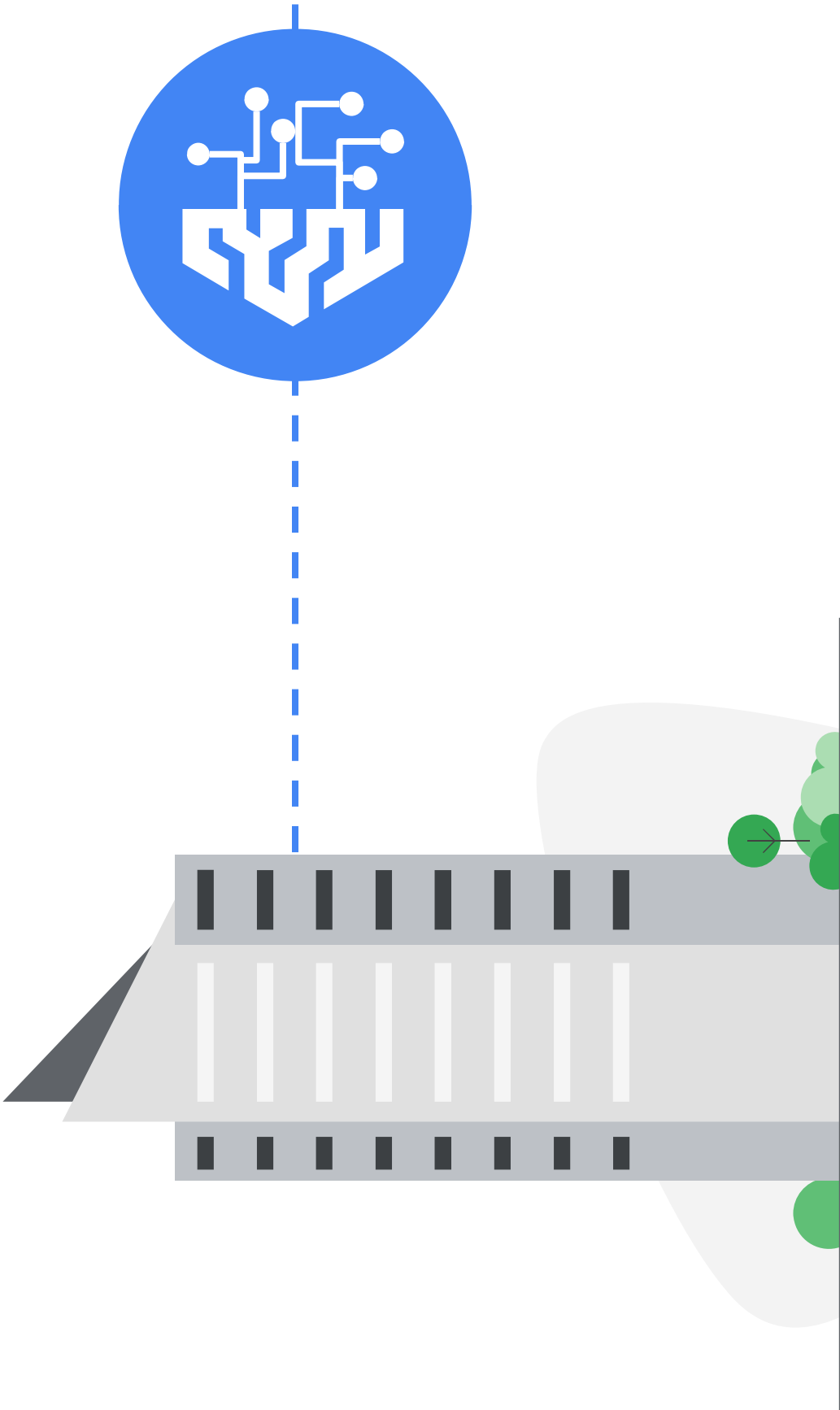


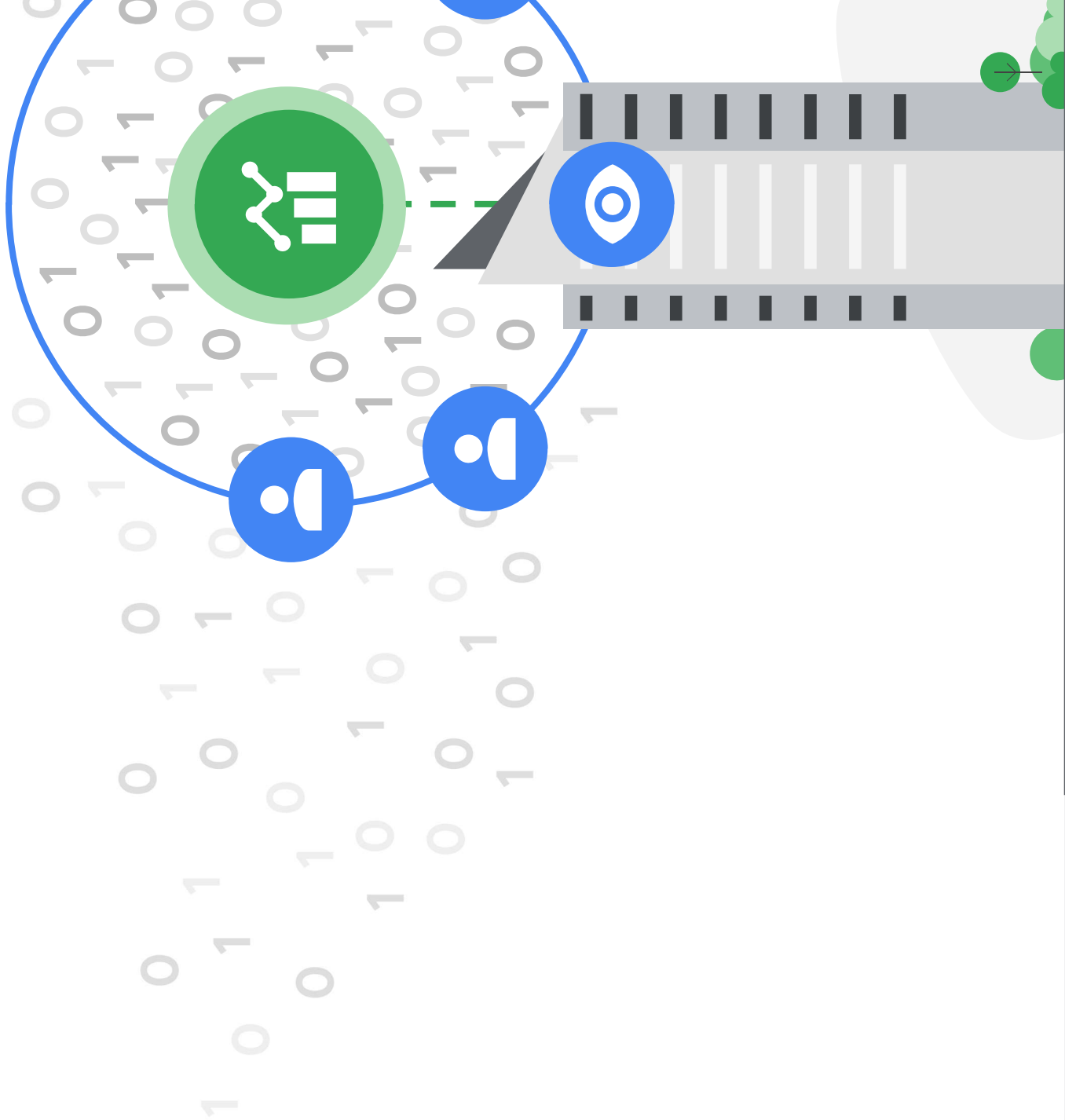
Nearline storage



Coldline storage



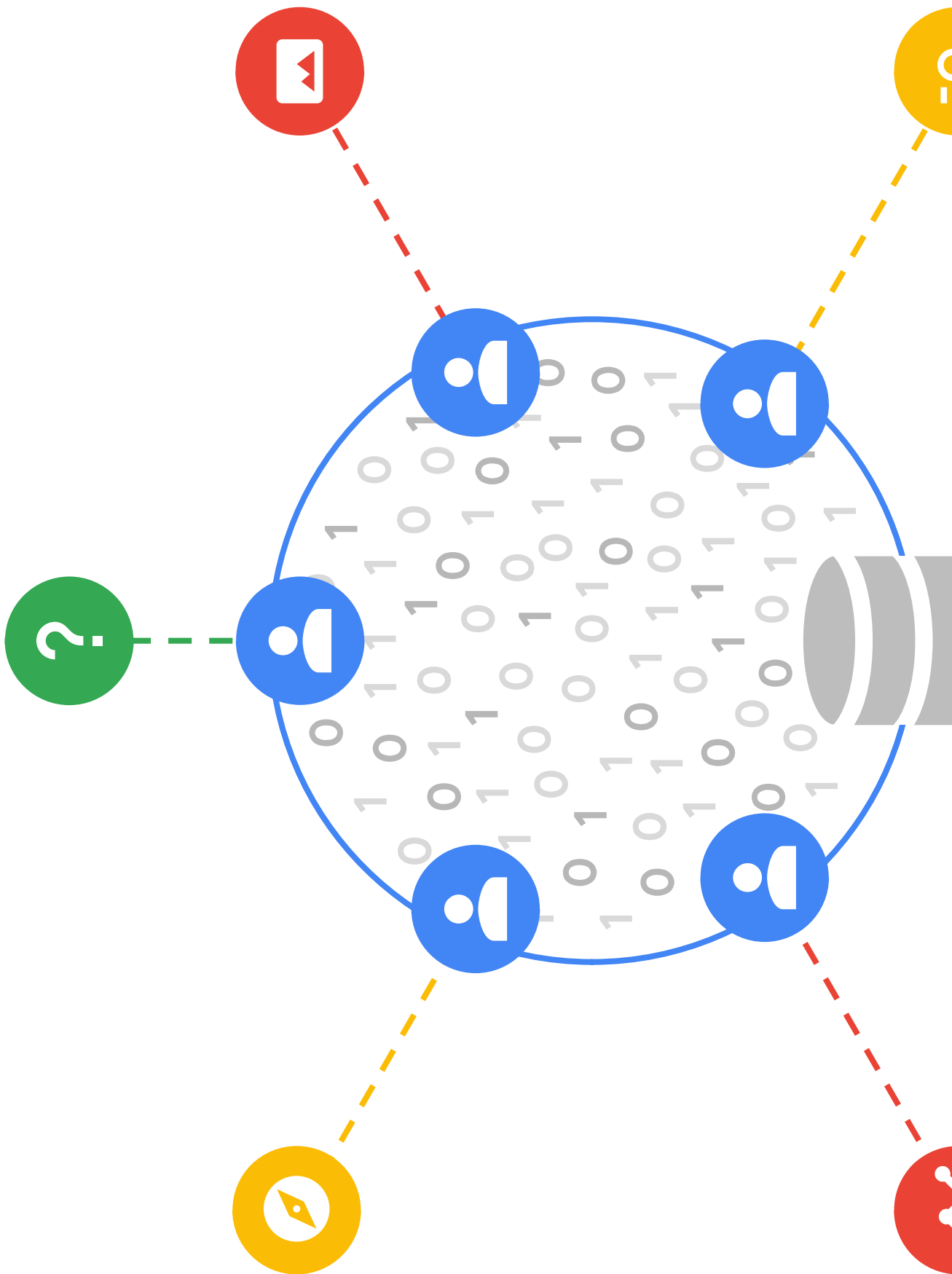






Looker



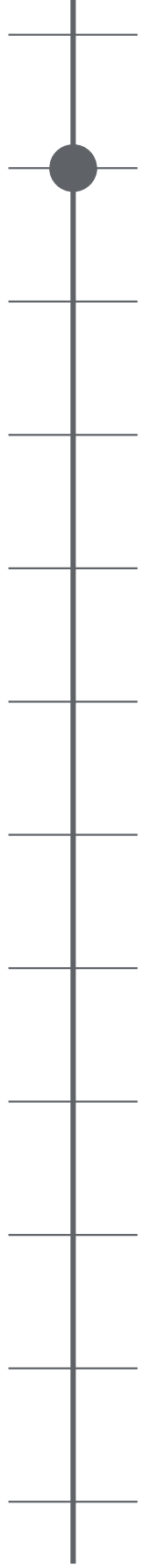




Google Cloud

Module 3: Student Slides

Innovation with
Machine Learning





Artificial intelligence



Machine Learning



Algorithm



Data



P



Data



Algorithm





```
def parameters
  $params->def('greeting', 1);
  $name = $params->def('name', 1);
  $links = $params->def('define_links', 0);
  $display_links = $params->def('display_links', 1);
  $custom_link_register = $params->def('link_new_account', '');
  $custom_link_forgot_password = $params->def('link_forgot_password', '');
  $custom_link_forgot_username = $params->def('link_forgot_username', '');
  $cdlogin_border = $params->def('cdlogin_border', 'none');
  $outlineType = $params->def('outlineType', 'rounded-white');
  $align = $params->def('align', 'auto');
  $anchor = $params->def('anchor', 'auto');
  $dimmingOpacity = $params->def('dimmingOpacity', '0');
  // end
  // helper
  $type = modCdLoginHelper::getType();
  $return = modCdLoginHelper::getReturnURL($params, $type);
  $loadScripts = modCdLoginHelper::loadScripts('mod_cdlogin'); // load CSS st
  $name = modCdLoginHelper::getName($form_name, $greeting); // set usern
  $forgot_username_link = modCdLoginHelper::setForgotUsernameLink($define_lin
  $custom_link_forgot_username); // set Forgot Username link
  $forgot_password_link = modCdLoginHelper::setForgotPasswordLink($define_lin
  $custom_link_forgot_password); // set Forgot Password link
  $register_link = modCdLoginHelper::setRegisterLink($define_links, $custom
  link
```

Traditional software





Data cleanliness



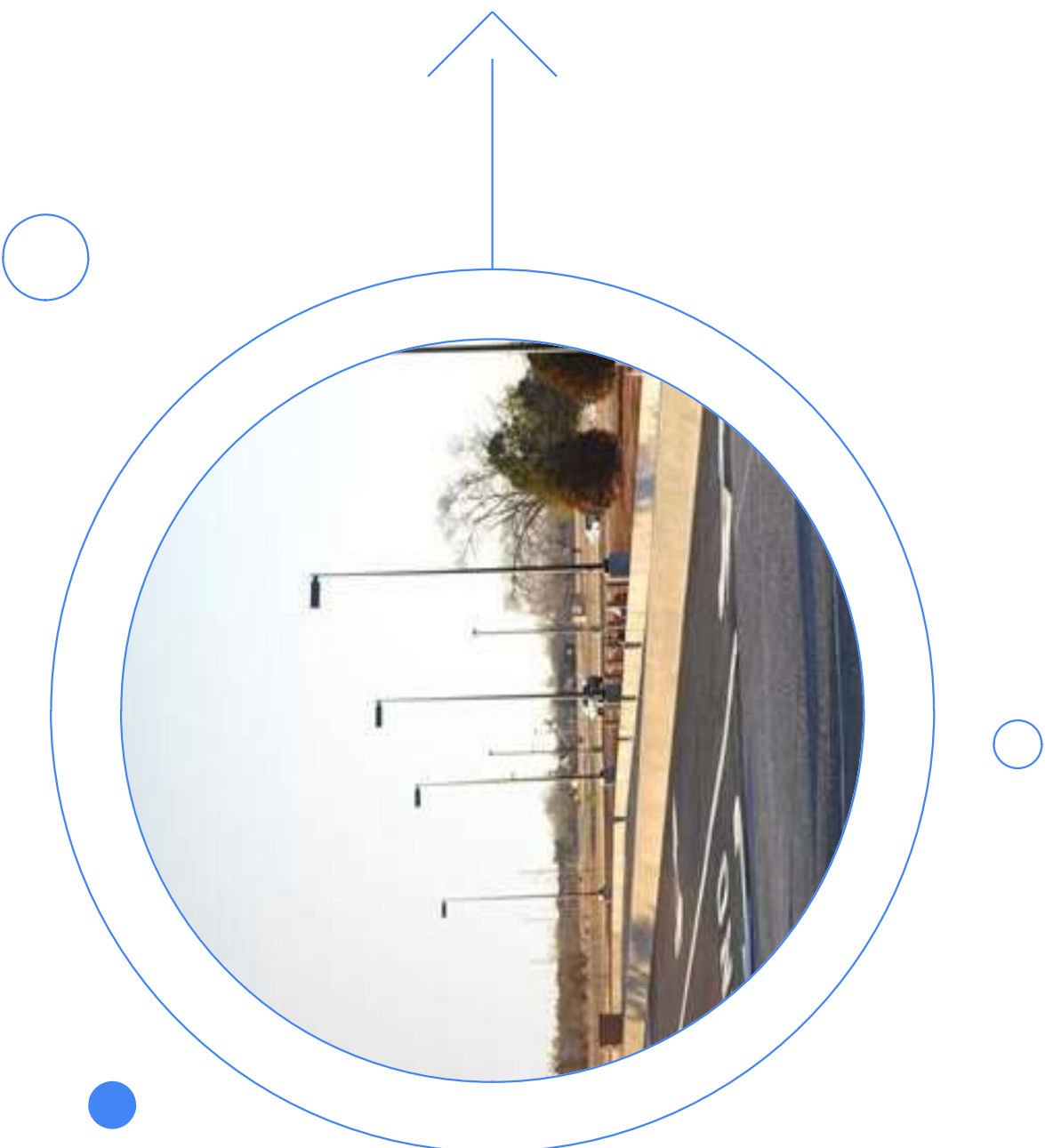
Data completeness



Lack

Mist
how

Poo
and

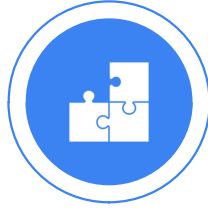




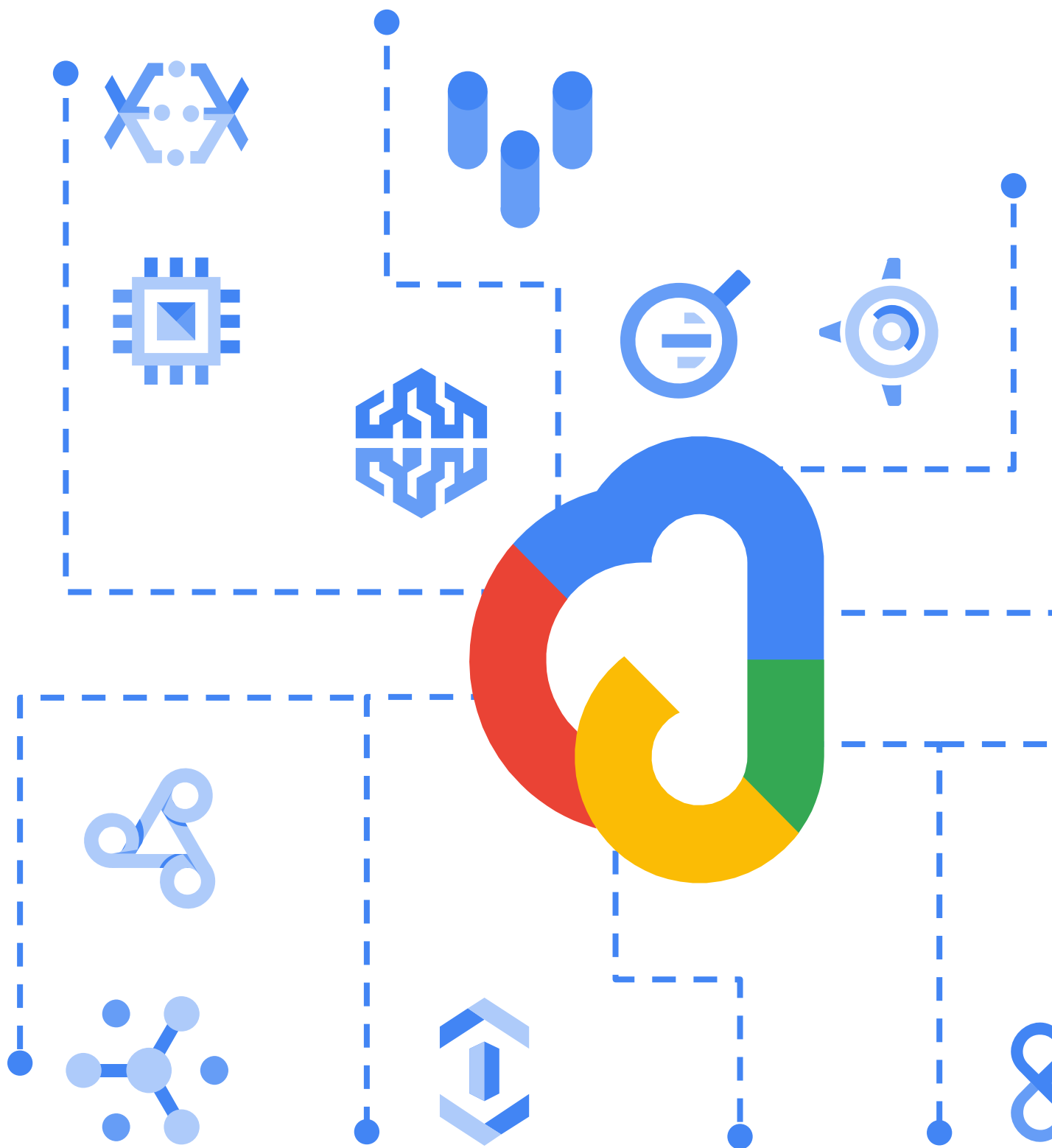
Improve coverage?

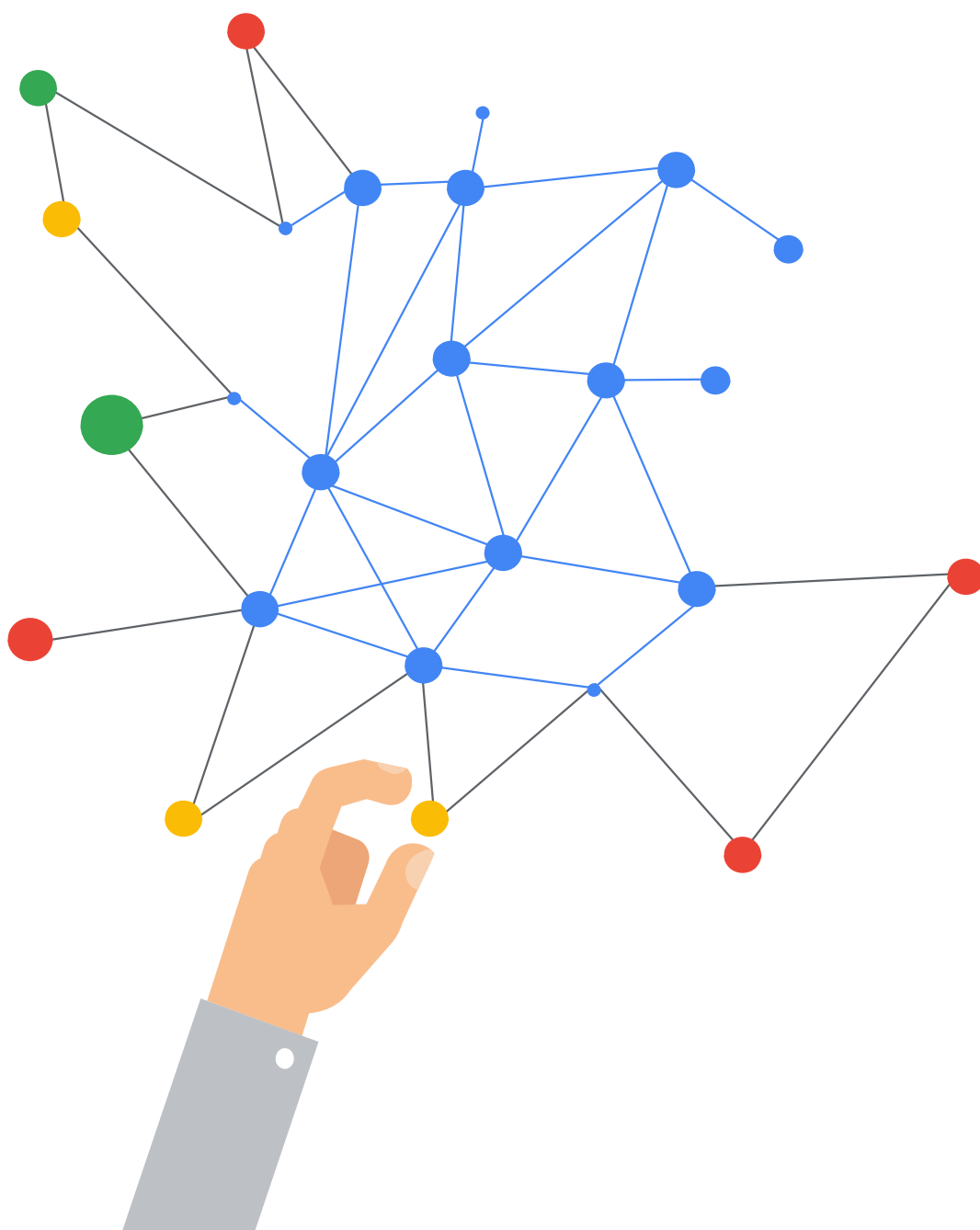


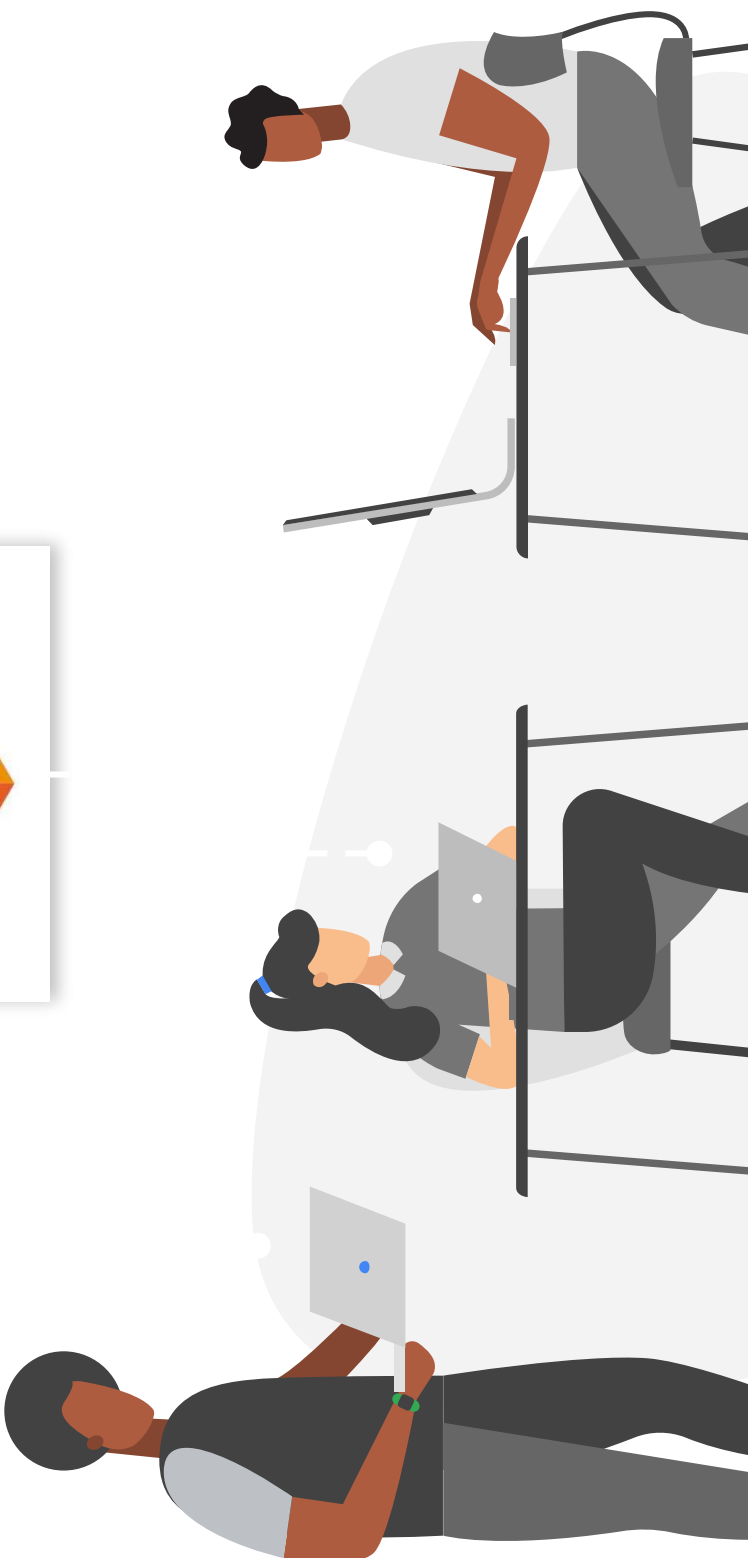
Improve cleanliness?



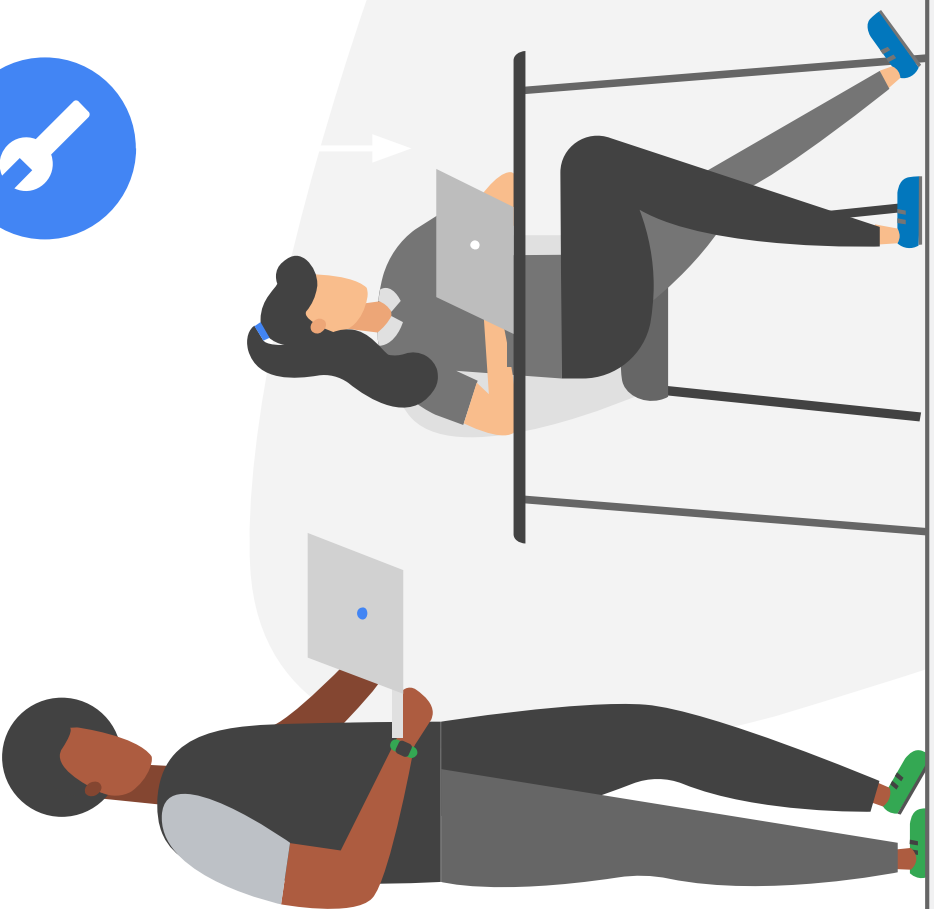
Make data complete?

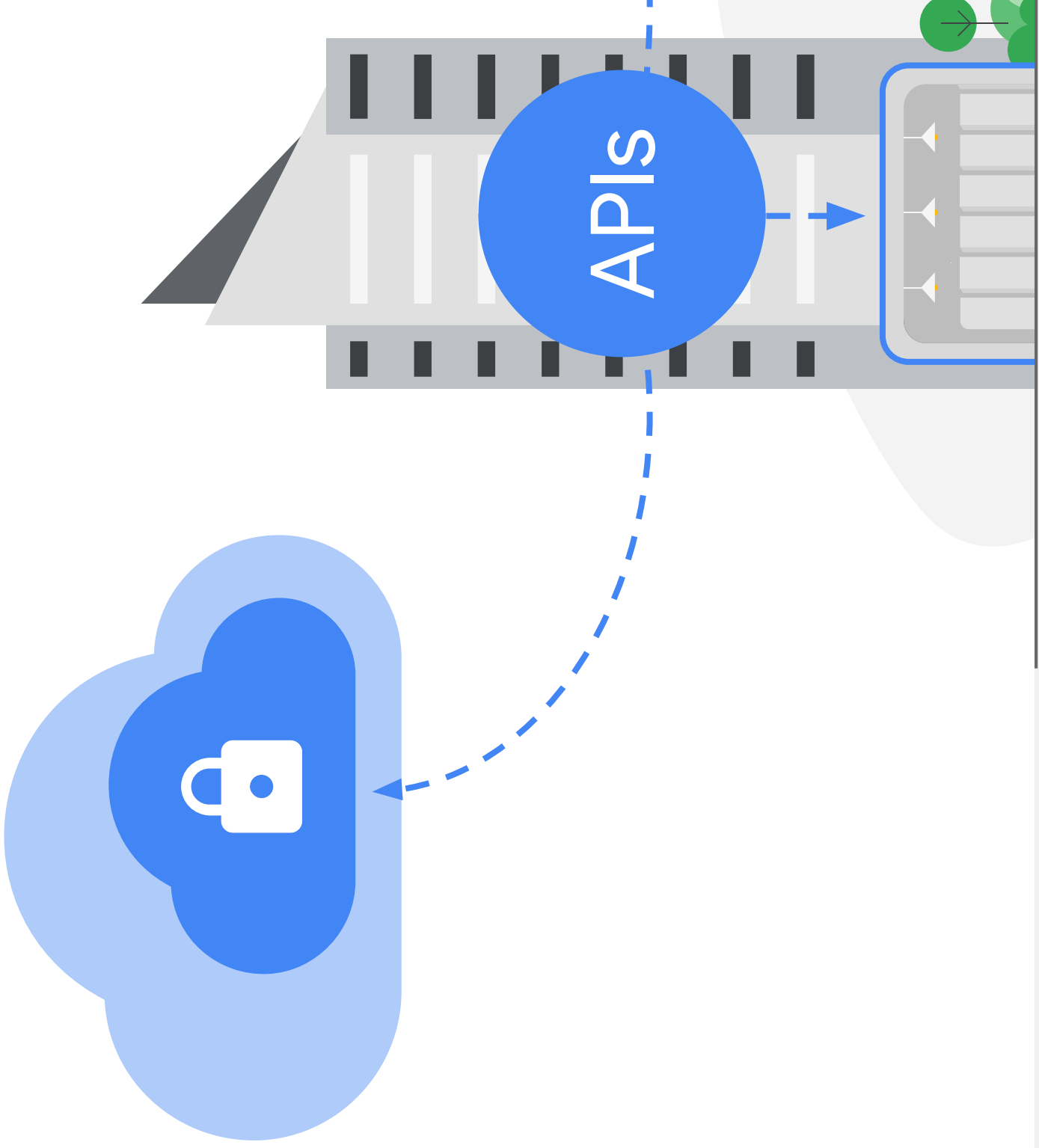







TensorFlow takes advantage of Tensor Processing Units (TPU), hardware devices designed to accelerate ML workloads with TensorFlow by 15-30x. Because you pay only for what you use, there's no up-front capital investment required.







ML is uniquely placed to create new business value when it can learn from data to automate action and processes, and to customize responses to behavior. The four common business problems that ML is particularly suited to solving are: