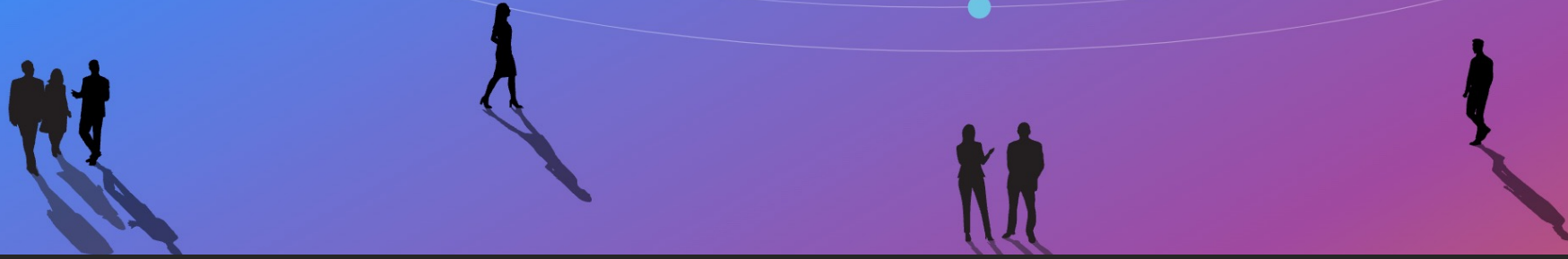


Extend. Expand. Exemplify.

The SGCI team continues to offer its services AND brings you a new Center of Excellence to Extend Access, Expand the Community, and Exemplify Good Practices for CI through Science Gateways.



Science Gateways and the SGX3 Center of Excellence

Michael Zentner

Division Director, Sustainable Scientific Software

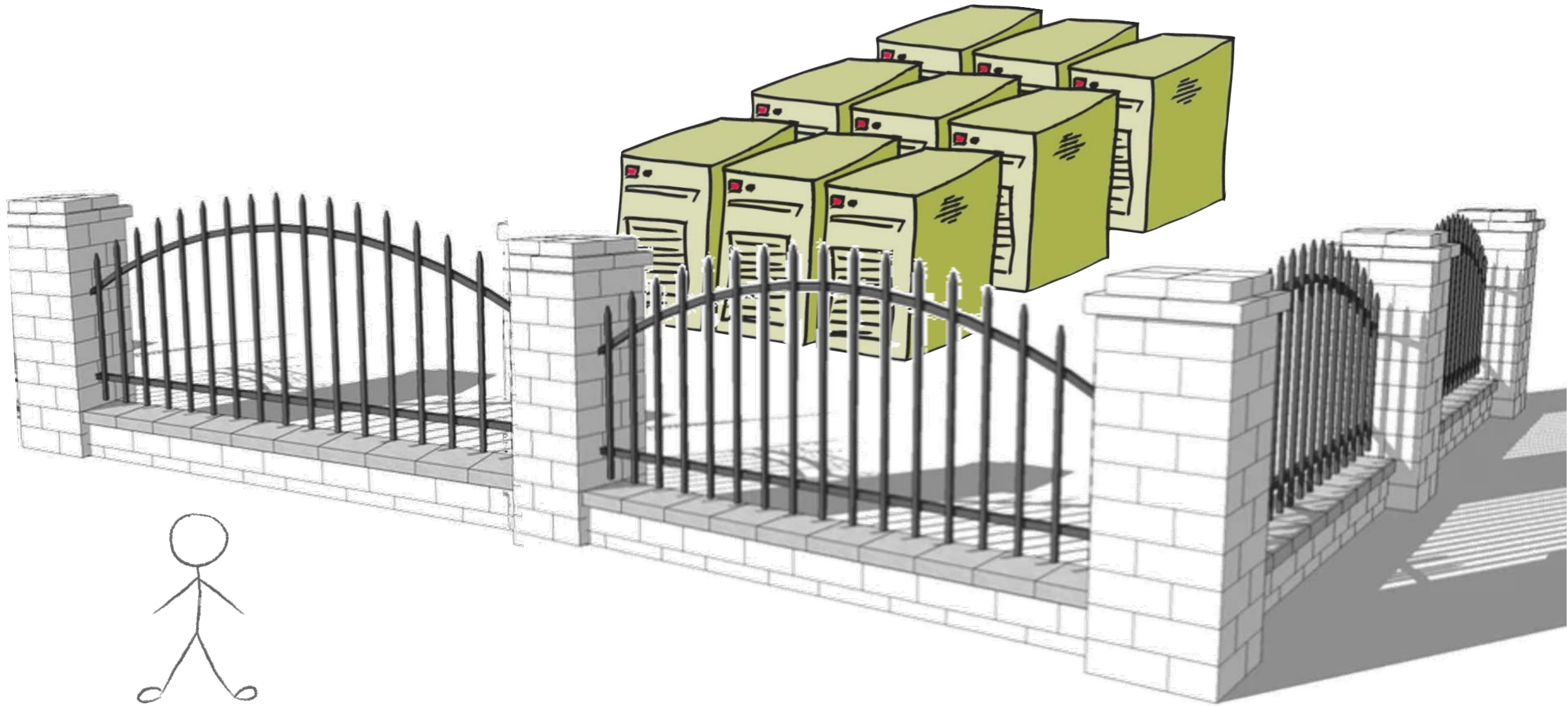
Director, SGX3 Center of Excellence for Science Gateways

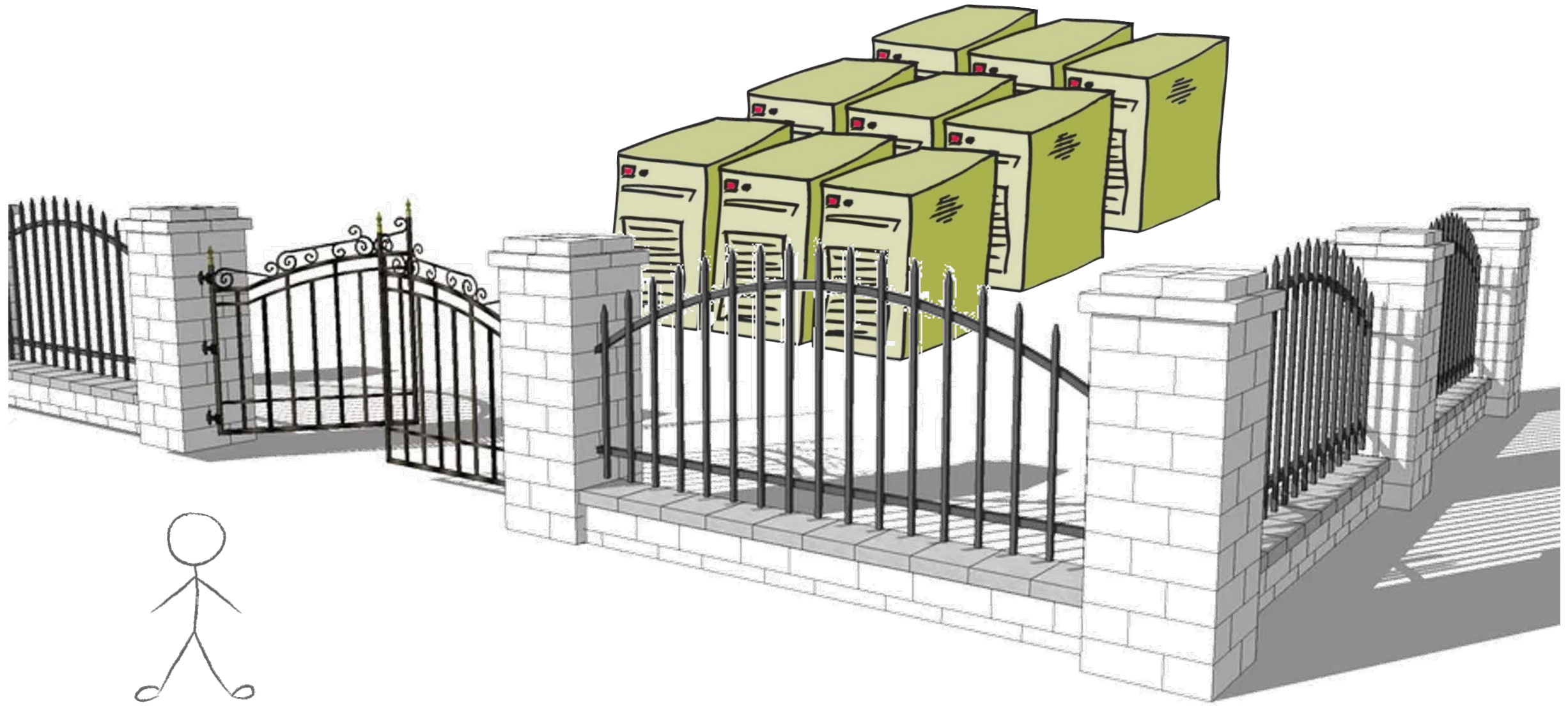
San Diego Supercomputer Center

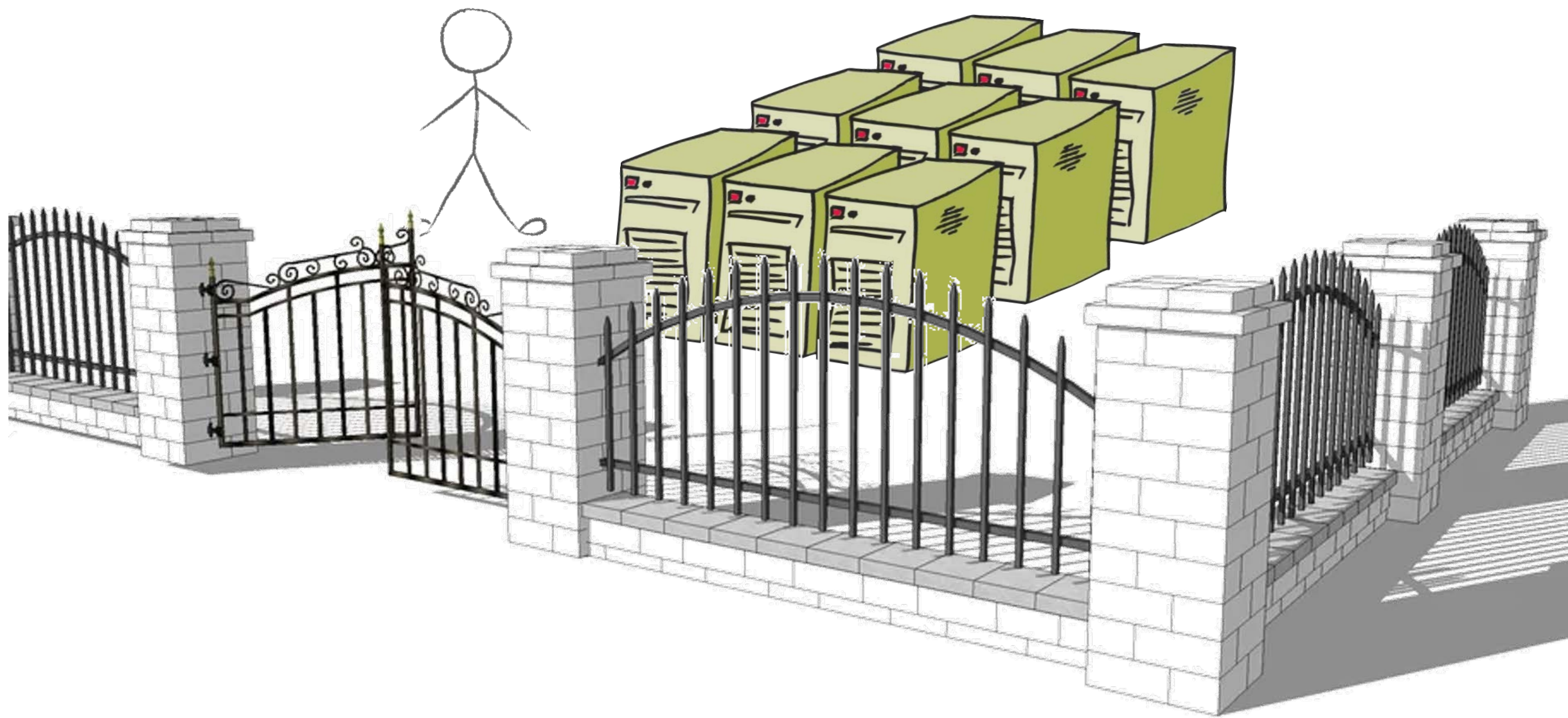
University of California, San Diego



NSF awards
1547611
2231406







Science Gateways...



...are about web-based
platforms for scientific
connections.

```
document.getElementById(div).innerHTML = errMess;
else if (i==2)
{
var atpos=inputs[i].indexOf("@");
var dotpos=inputs[i].lastIndexOf(".");
if (atpos<1 || dotpos<atpos+2 || dotpos>=inputs[i].length-1)
document.getElementById('errEmail').innerHTML = "Use if (i==2)";
else
document.getElementById(div).innerHTML = "OK";
}
```



Scientific Software to Supercomputers...

```
document.getElementById(div).innerHTML = errMess;
else if (i==2)
{
var atpos=inputs[i].indexOf("@");
var dotpos=inputs[i].lastIndexOf(".");
if (atpos<1 || dotpos<atpos+2 || dotpos>inputs[i].length-1)
document.getElementById("errEmail").innerHTML = "Invalid email address";
else
document.getElementById(div).innerHTML = "Valid email address";
}
```



...to massive audiences of researchers and students



```
document.getElementById(div).innerHTML += errMes  
else if (i==2)  
{  
  var atpos=inputs[i].indexOf("@");  
  var dotpos=inputs[i].lastIndexOf(".");  
  if (atpos<1 || dotpos<atpos+2 || dotpos  
  document.getElementById('errEmail').innerH  
  use if (document.getElementById(div).innerH  
  else  
  document.getElementById(div).innerHTML += "E
```



...to expensive instruments




```
document.getElementById(div).innerHTML = errMes  
else if (i==2)  
{  
  div = divs[i];  
  var atpos=inputs[i].indexOf("#");  
  var dotpos=inputs[i].lastIndexOf(".");  
  if (atpos<1 || dotpos<atpos+2 || dotpos>=inputs[i].length-1)  
    document.getElementById('errEmail').innerHTML = "E-mail address is not valid";  
  else  
    document.getElementById(div).innerHTML = "Valid";  
}
```



...to data





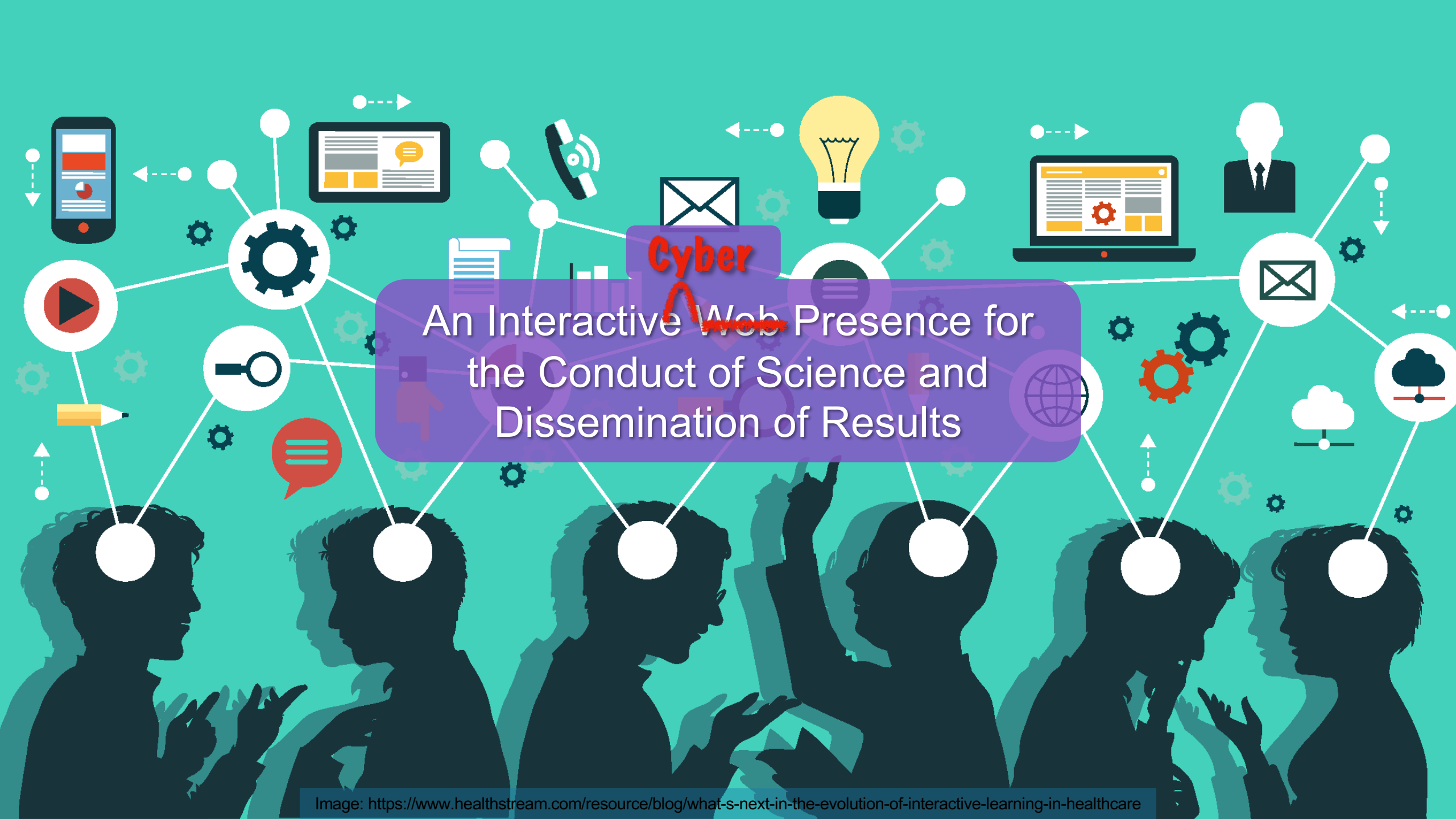
```
document.get  
else if (i==2  
{  
  div<divs1>  
<input  
  var atpos=i  
  var dotpos=inp  
  (atpos  
  document  
  else  
  document.get  
  document.get
```

...to each other



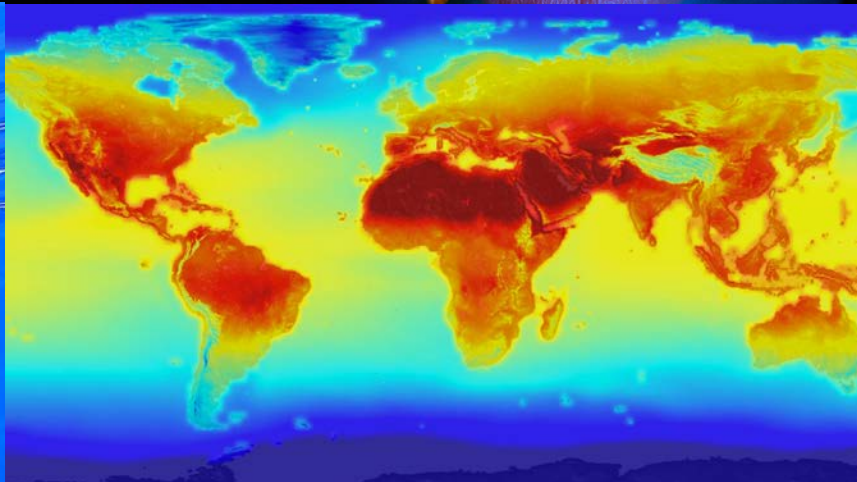
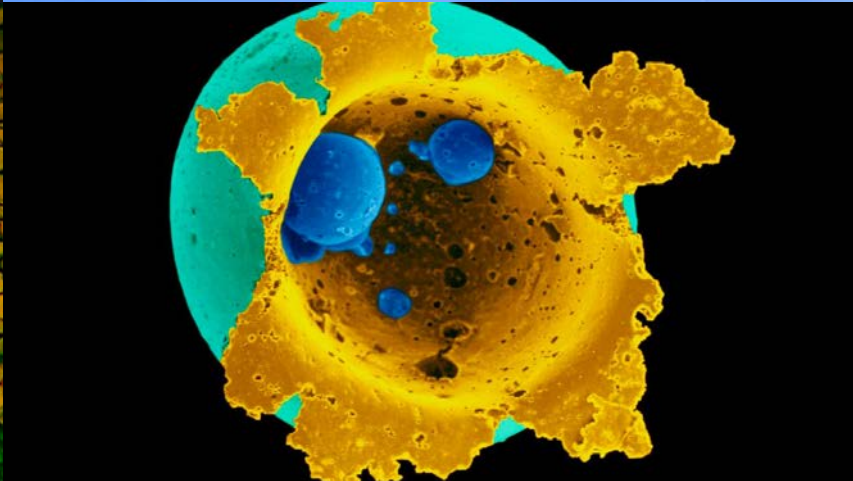
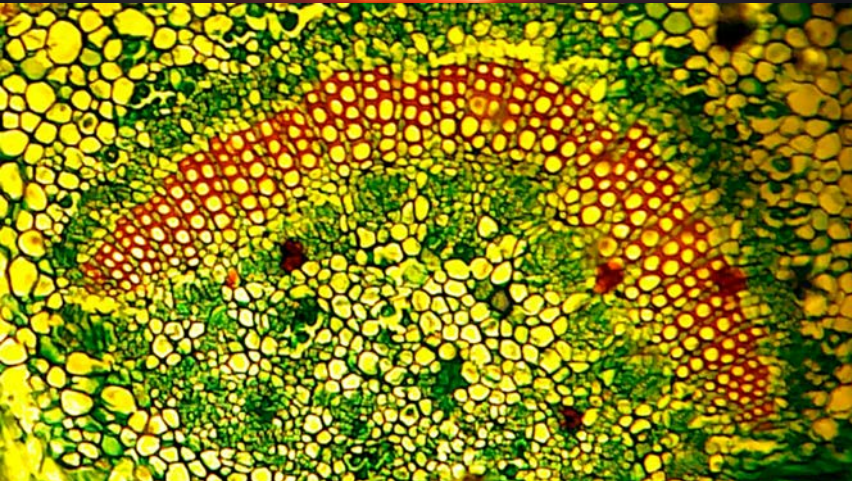


An Interactive Web Presence for the Conduct of Science and Dissemination of Results



Cyber

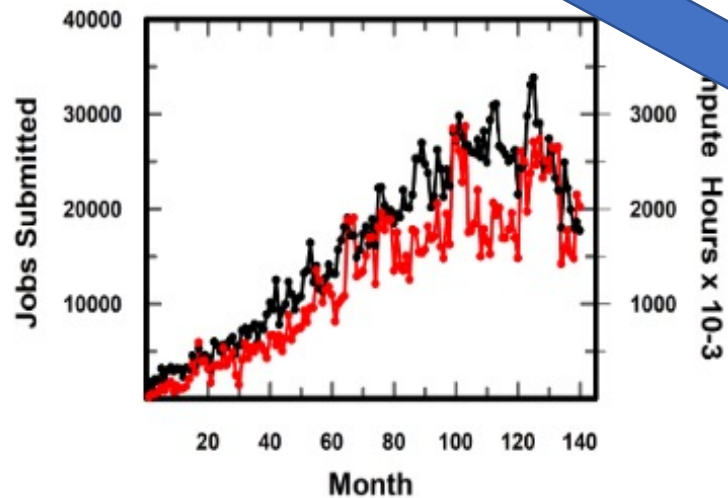
An Interactive Web Presence for
the Conduct of Science and
Dissemination of Results



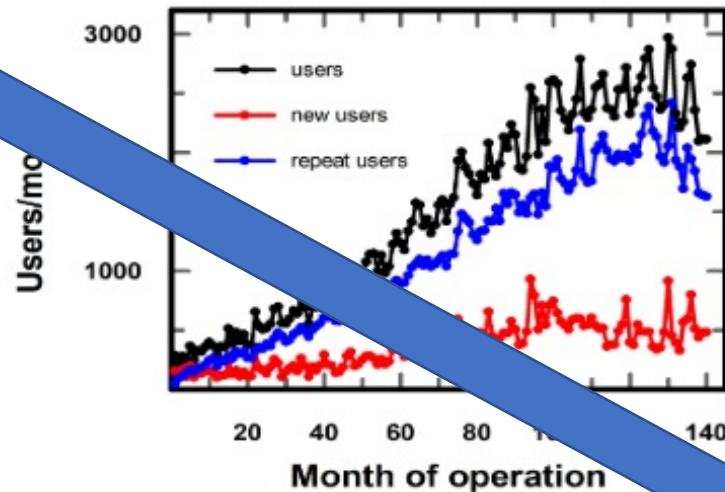
It Matters: Scholarly Impact

CIPRES Science Gateway Usage Statistics 12/1/2009 - 9/30/2021

- 2.29 million TeraGrid/XSEDE jobs submitted by 52,026 unique users.
- Average of 549 new XSEDE users registered in each of the last 12 months.
- 166 million core hours of TeraGrid/XSEDE time distributed to scientists.
- Used for curriculum delivery by at least 114 instructors.
- Supported at least 9,700 publications.



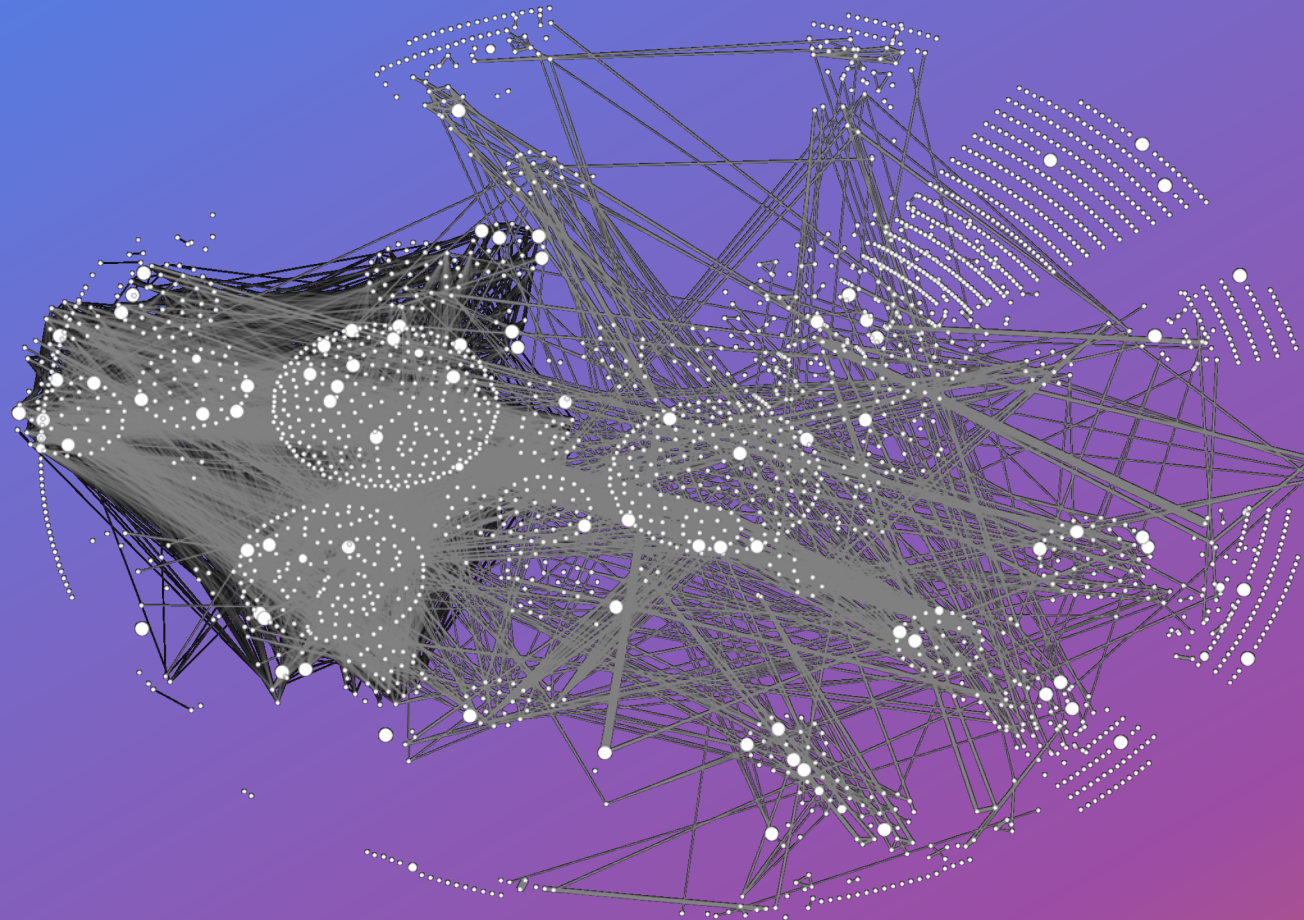
Jobs: Black; CPU HRS, Red.



- Supported at least 9,700 publications.

It Matters: Collaboration Impact

nanoHUB Citation Network (2000-2022)



2,724 vetted
citations

68,310
secondary
citations

Three distinct dot sizes indicate the level of influence on h-index
• Papers with relatively low secondary citations • Papers with potential to influence h-index • Papers affecting the h-index

It Matters: Financial Impact

PDB Archive contains >1 TB of Structure Data for Proteins, DNA, and RNA		The cost to replicate the contents of the PDB archive is estimated at More than 20 billion (Analysis)
The PDB Archive <ul style="list-style-type: none">• Grows at the rate of nearly 10% per year• Used to download >2 million structure data files per day• Managed by International collaboration US-Asia-Europe• Manages "Big Data" as global Public Good• Provides data critical to AI/ML development	PDB Data <ul style="list-style-type: none">• Enable research in subject areas from Agriculture to Zoology (Analysis)• Contributed data to nearly >1 million published research papers• Used by >475 biological data resources	PDB Data Impact <ul style="list-style-type: none">• Basic and applied research• Patent applications• Discovery of lifesaving drugs• Innovations that can lead to new product development and company formation• Training, Outreach, and Education: PDB-101 materials illustrate how PDB data help explain fundamental biology, biomedicine, energy sciences, and biotechnology
Millions of Data Consumers worldwide served every year Researchers, scientists, educators, students, curious public, medical professionals, patients, and patient advocates	Public and Private sectors, including pharmaceutical and biotechnology companies	Generates annual Return on Investment of more than 1,500 times federal funding (Analysis)

The cost to replicate the contents of the PDB archive is estimated at **More than 20 billion** (Analysis).

Generates annual **Return on Investment** of more than 1,500 times federal funding (Analysis).


```
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33 <td colspan="4" style="background: url(images/www_06.jpg); vertical-align: top;">
34 <div>
35 <div>
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38 <td width="195" valign="bottom" align="right">
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40 
41
42 </a>
43 <td width="106" valign="bottom">
44 
45 </td>
46 <td width="147" valign="bottom" align="left">
47 <a href="portfolio_projekty.html">
48 
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52 <tr>
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<table border="0" width="100%" cellpadding="0">
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<strong>Witaj w witrynie internetowej <strong>
</td>
</tr>
</table>
</td>
</tr>
</table>
</div>
</div>
</td>
</tr>
</table>
```

“How hard can it be? It’s just a web site.”

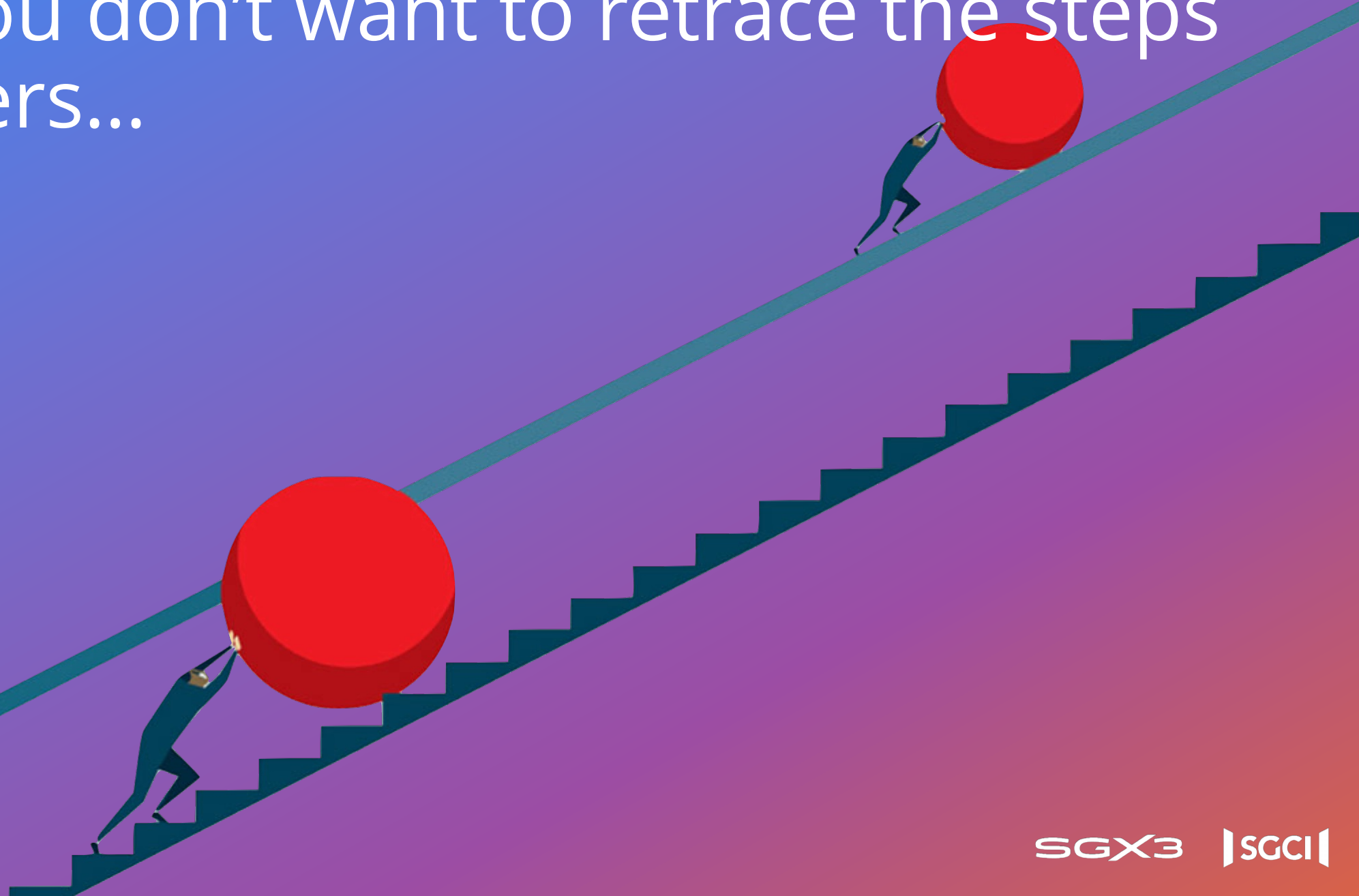
Day 1



Day T-1



So if you don't want to retrace the steps of others...



SGX3

The logo for ISGCII is displayed in white, bold, sans-serif font. It is set against a background of a network graph with nodes and connecting lines in shades of blue, purple, and pink. The letters 'I' and 'II' are stylized with vertical bars on their left and right sides respectively.

ISGCII

A Center of Excellence and a Software Institute to
Serve the Science Gateways Community.

- ✓ Community building activities
- ✓ Workforce development activities
- ✓ Light-touch consulting / advisory services
- ✓ Usability / user experience design and analysis
- ✓ Focus Week (Austin, April 2024)
- ✓ Conference (Boseman, October 2024)

- ✓ In depth consulting
- ✓ Software team augmentation / complete outsourcing
- ✓ Professional science gateway operation
- ✓ Graphic design

The logo for Science Gateways Community Institute (SGCI) features the letters 'SGCI' in a bold, white, sans-serif font. To the left of the letters is a white graphic element consisting of two vertical bars of unequal height, with the taller bar on the right, resembling a stylized 'S' or a bracket.

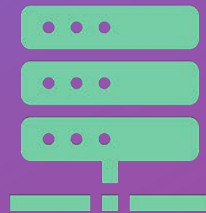
Science Gateways
Community Institute

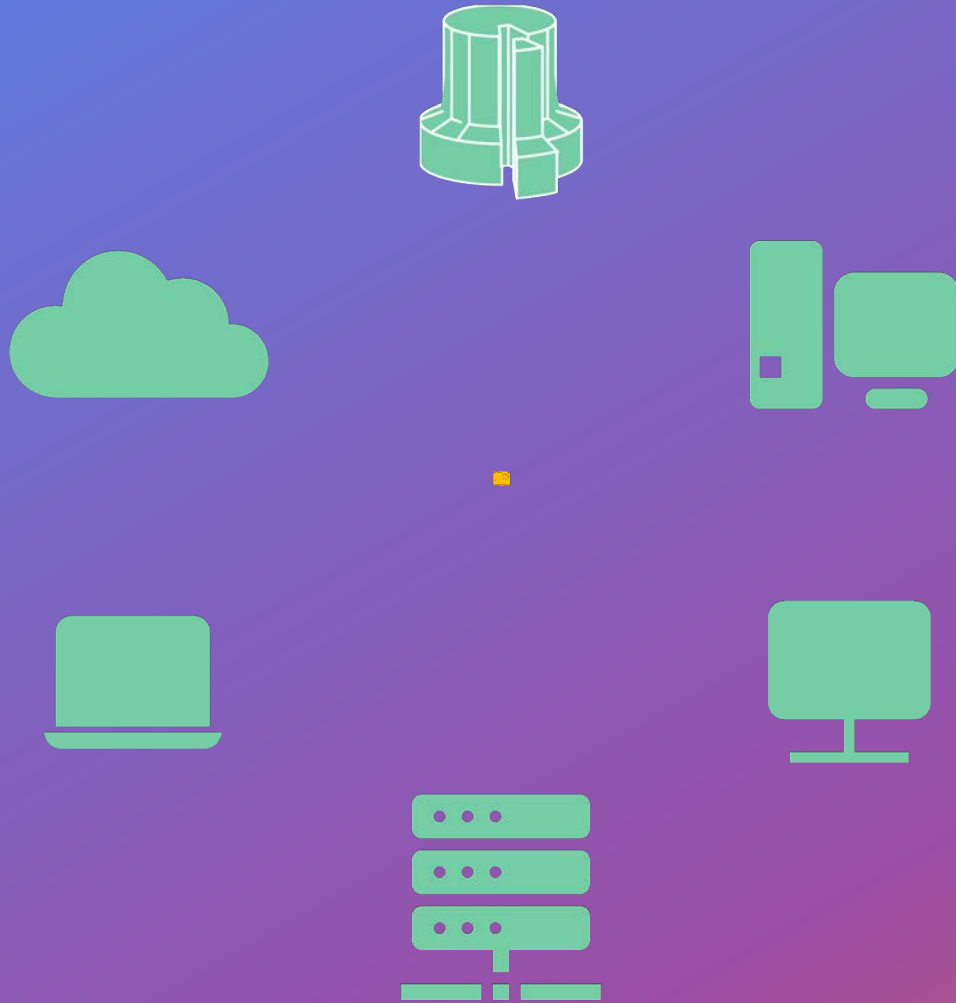
Connecting People
Creating Solutions
Accelerating Discovery

ScienceGateways.org/about/storybook

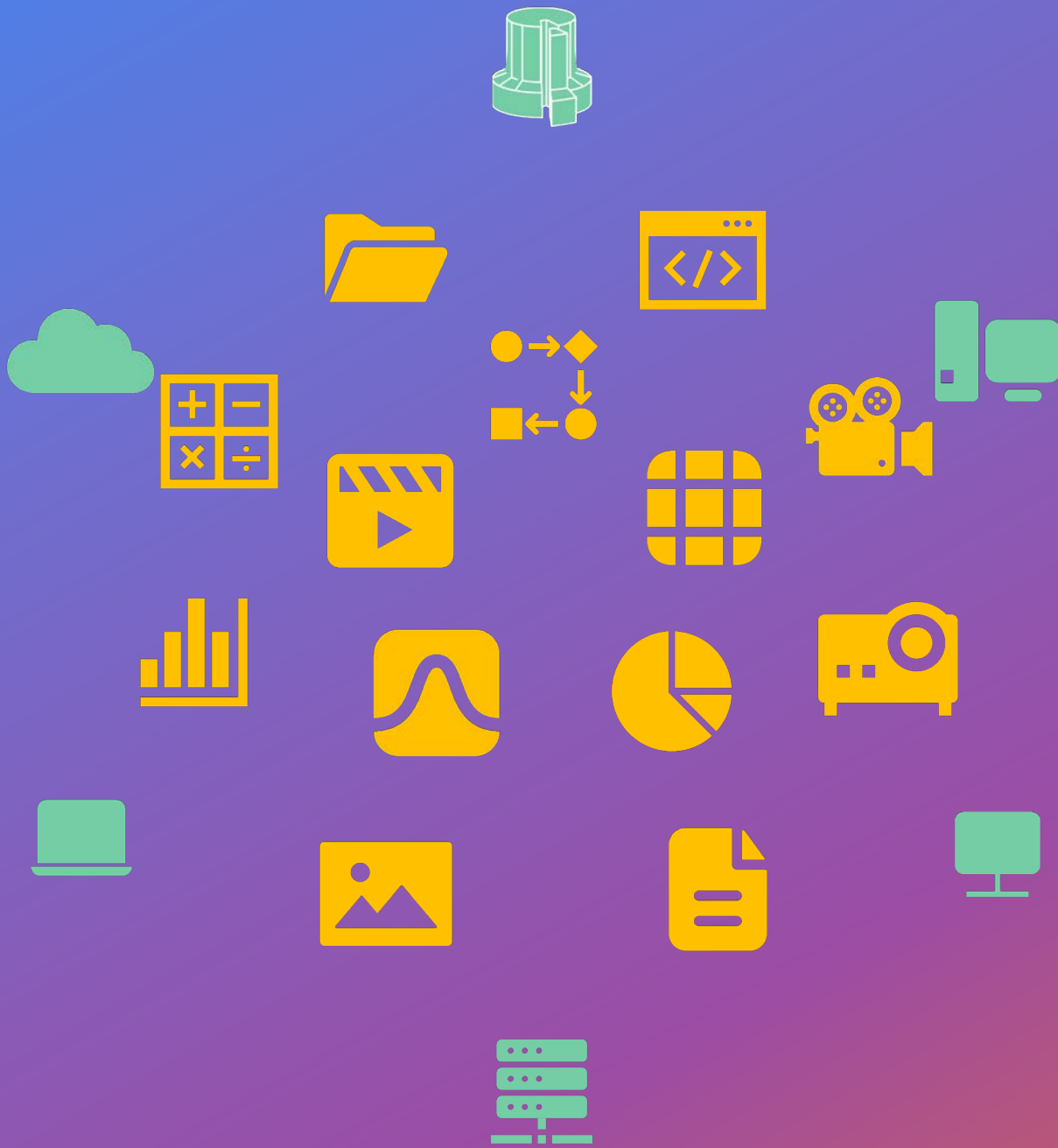


SGCI & SGX3 have facilitated some great impact stories and has shown an on average 6.8x acceleration in gateway development.











OneSciencePlace

A Science Gateway Platform Where Content Meets Computing

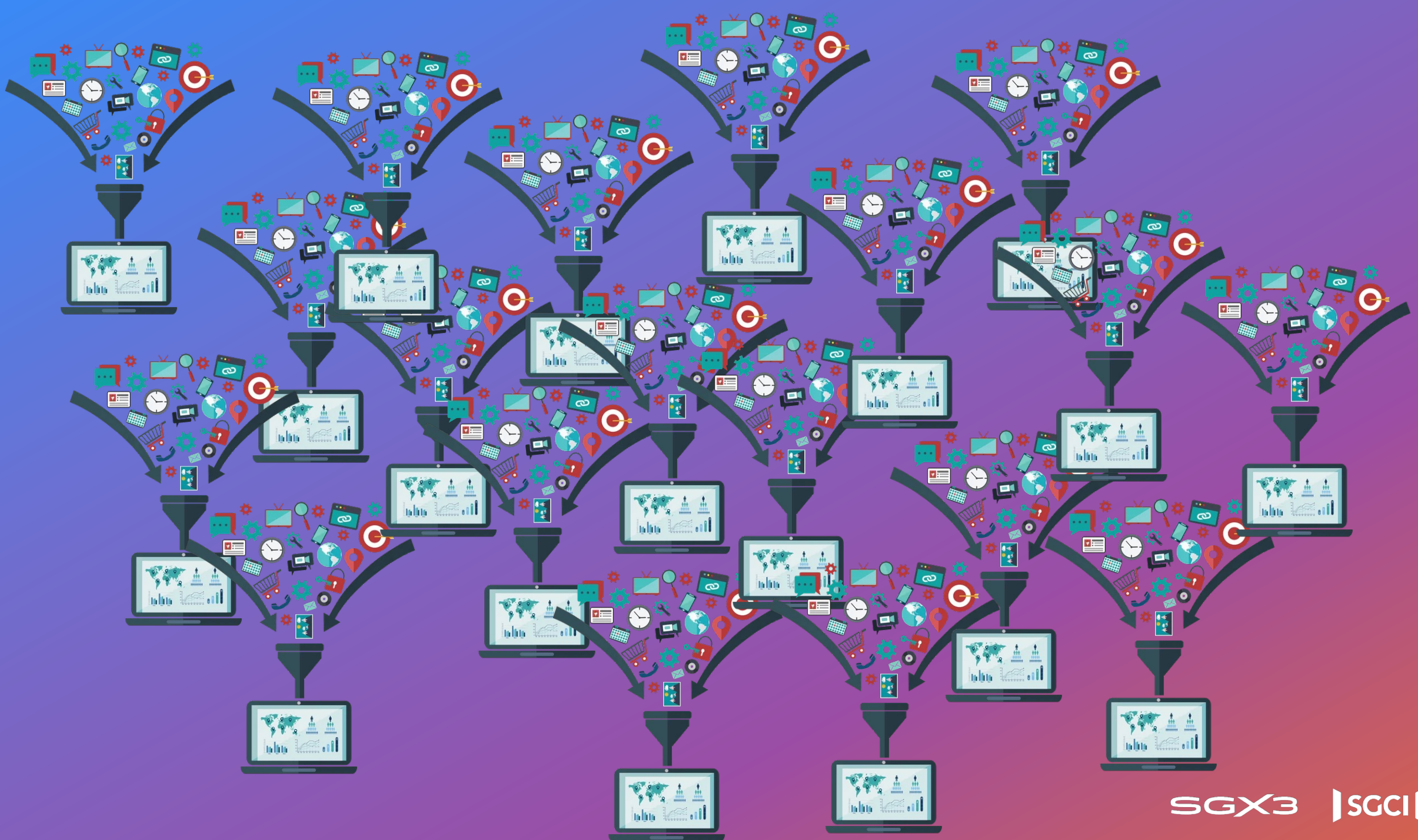
by the Science Gateways Community Institute

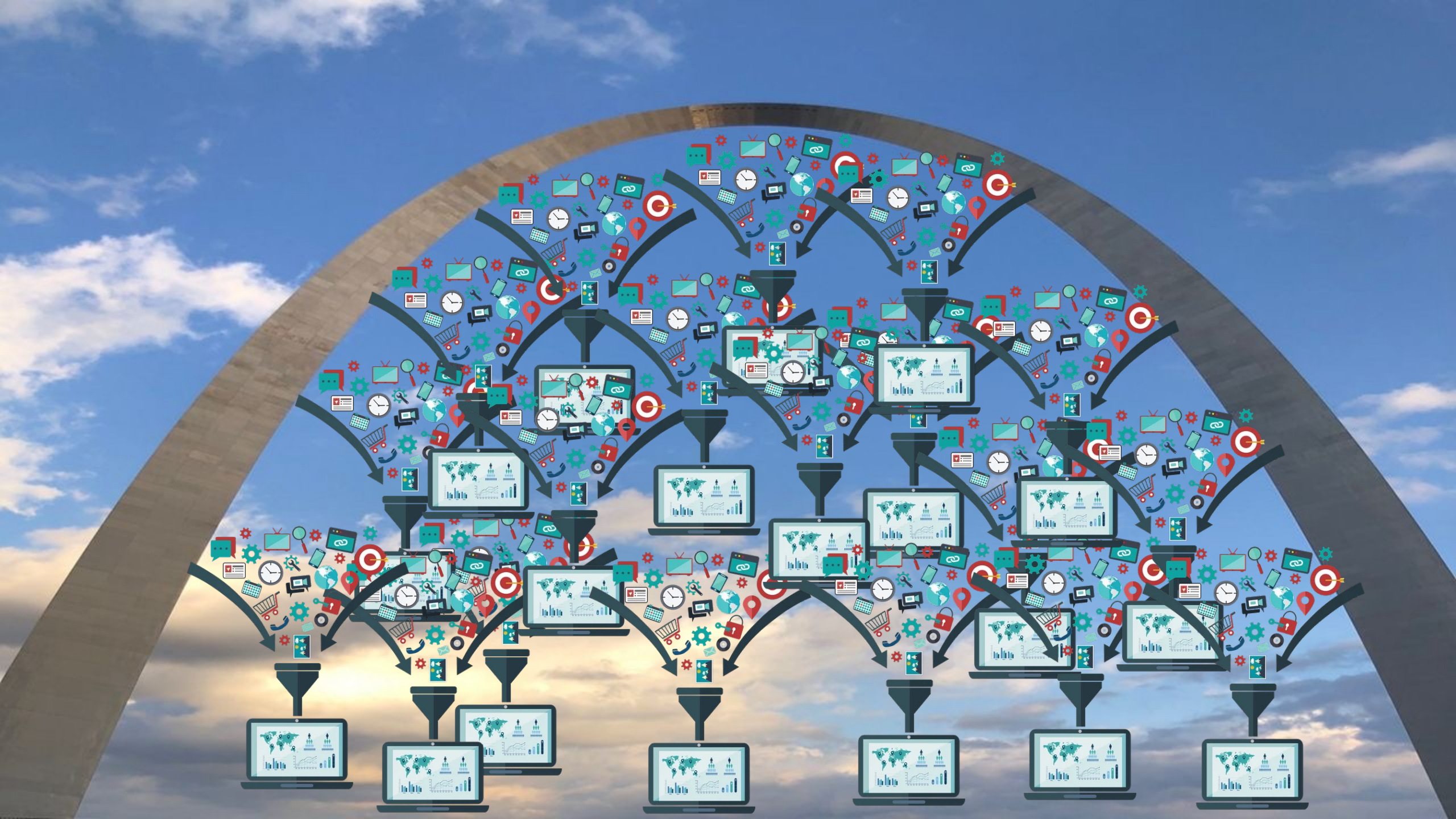




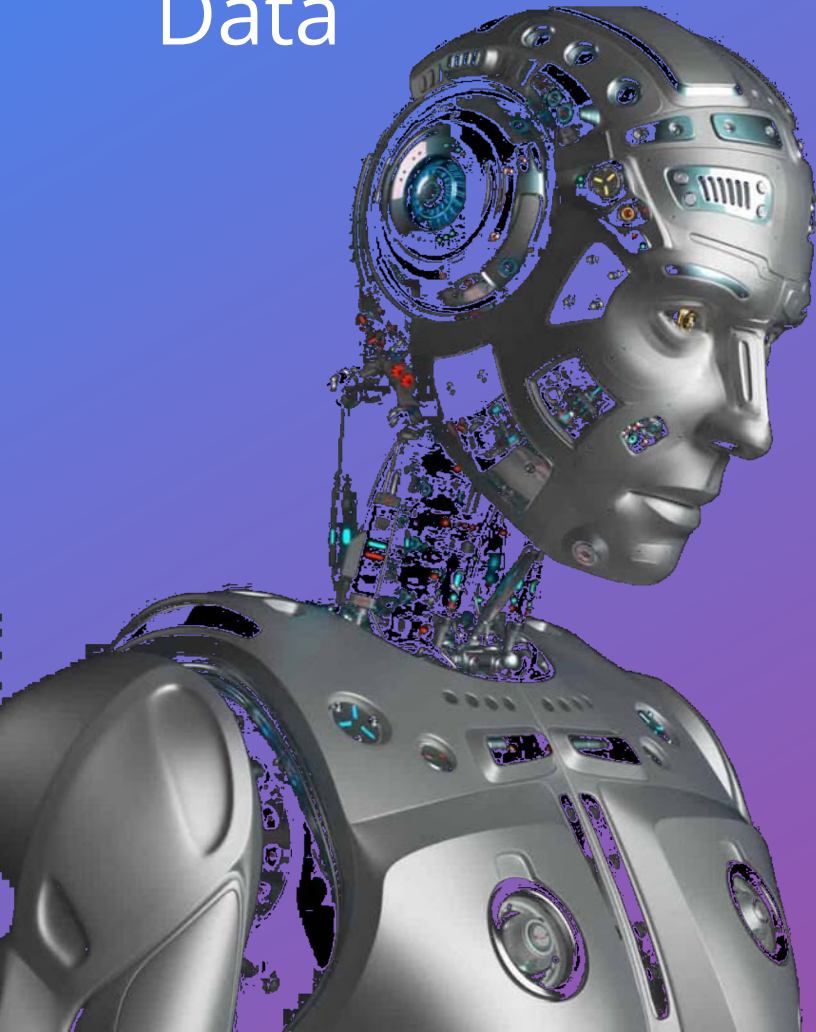








AI-Based Automation Possibilities with Science Gateway Data



FAIR

Automatically make computations and data processing results FAIR

Move

Move computing to data with automatically produced surrogate models

Interact

Facilitate fast interactions with data and models for rapid comprehension

Intervene

Intervene in user conduct using AI based analytics



OneSciencePlace

SGX3 | SGCI |

help@sciencegateways.org

www.ScienceGateways.org