

The Powerful Persistence of Big Ideas

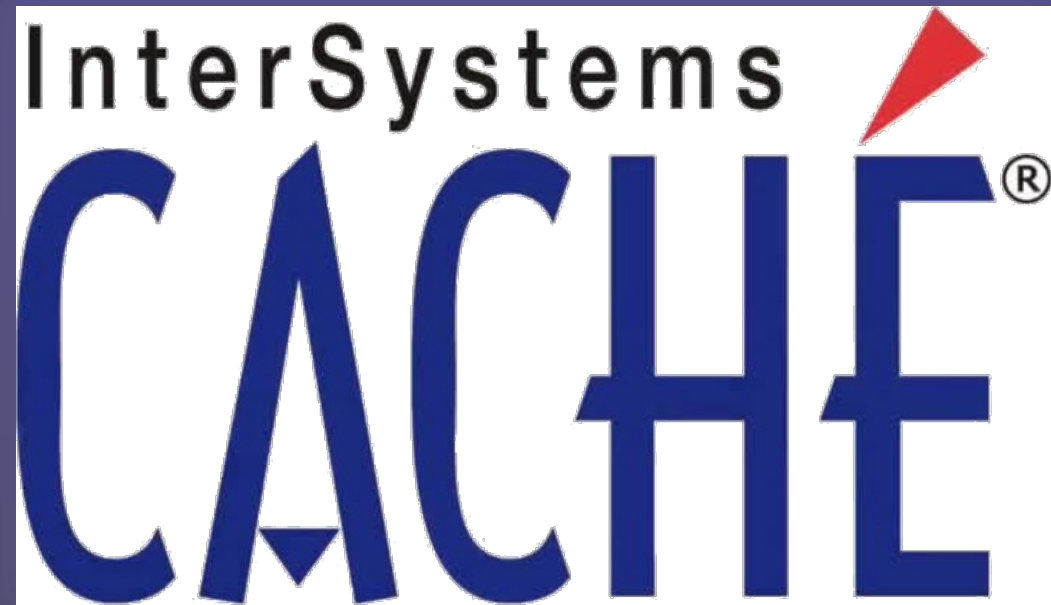


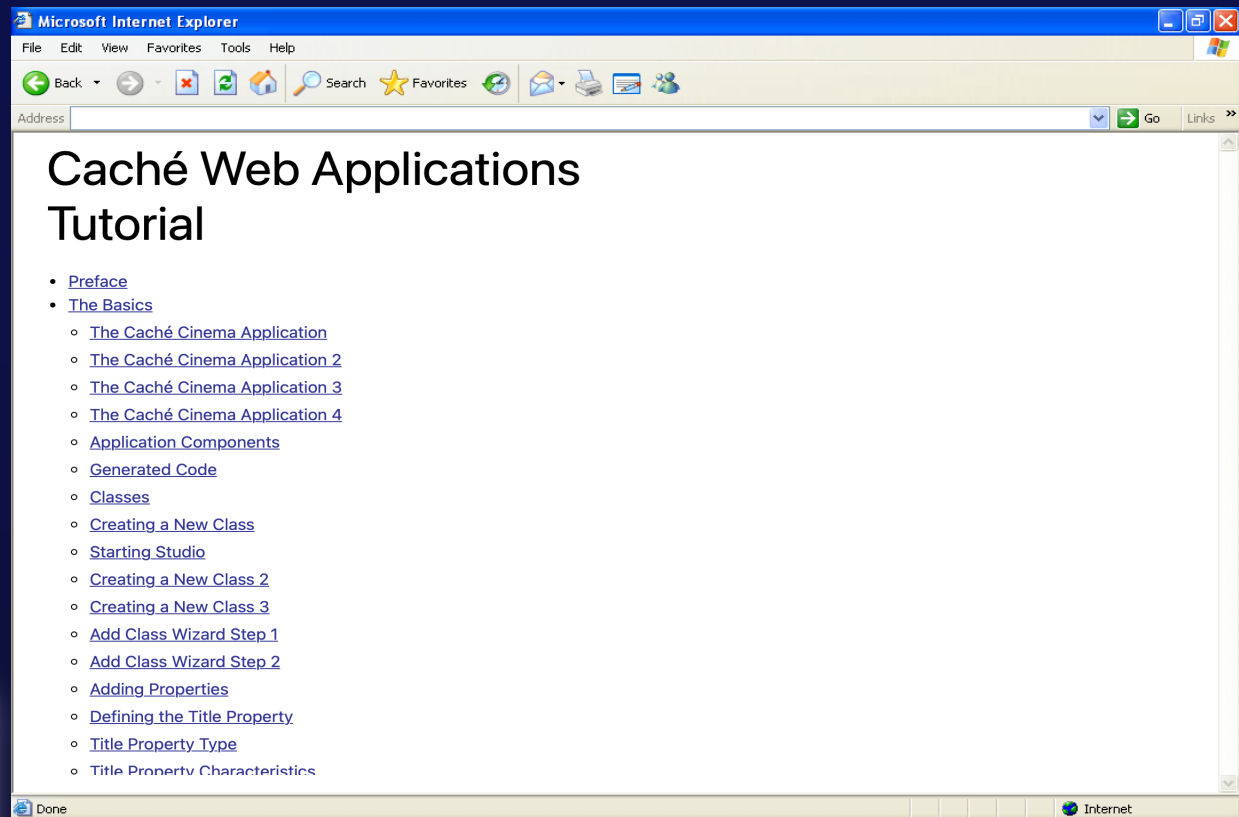
Tom Woodfin
Head of Development
InterSystems Data Platforms

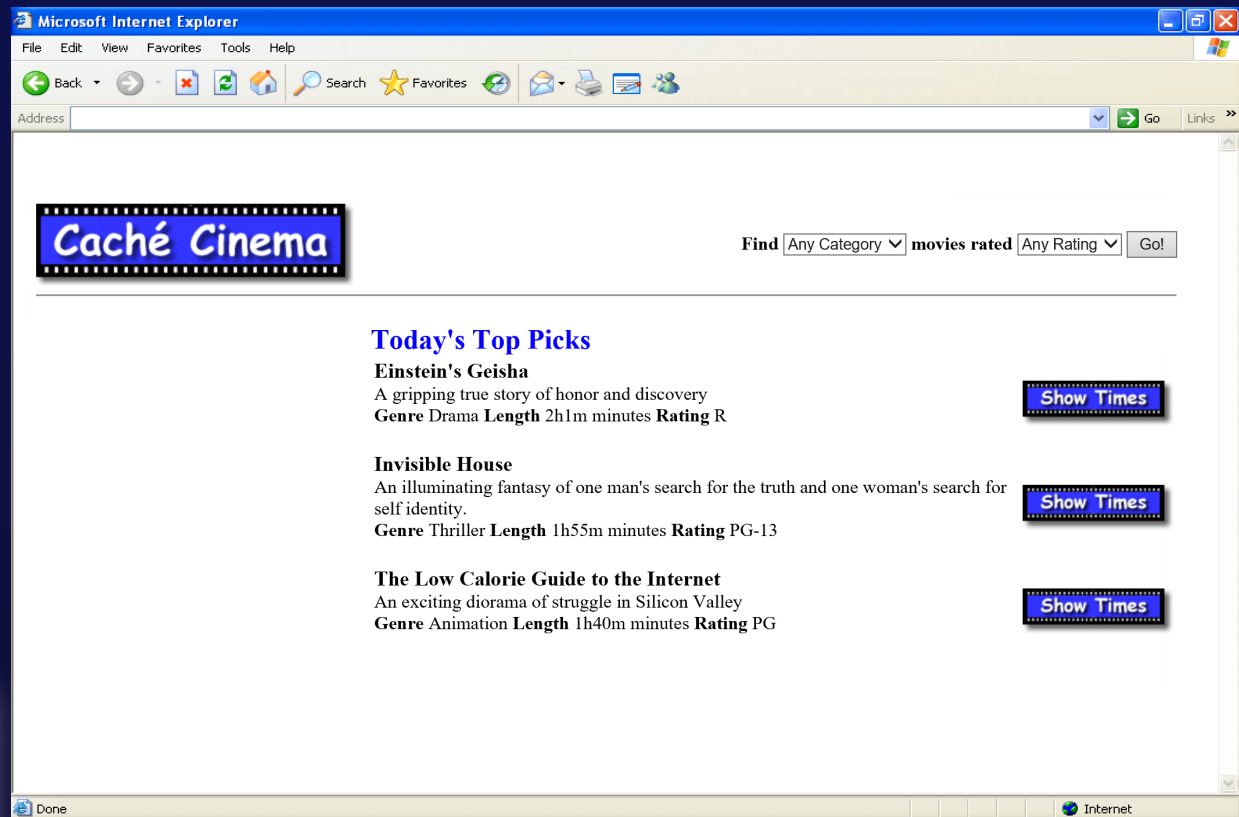
June, 2002



Tom Woodfin
Release Engineer







Big Ideas



Scott Gnau
VP, Data Platforms

Big Ideas



Scott Gnau
VP, Data Platforms

“Different By **Design**”

Big Ideas



Scott Gnau
VP, Data Platforms

“WEIRD IS GOOD!”

Big Ideas (2002 edition)





Complex Problems Need Unified Data



```
/// List of film genres, for instance "Drama".
Class Cinema.FilmCategory Extends %Library.Persistent
{

    Property CategoryName As %Library.String;

    /// Index for property CategoryName
    Index CategoryNameIndex On CategoryName;

    /// List of film category names
    Query CategoryName() As %Library.SQLQuery(CONTAINID = 1, ROWSP
    {
        SELECT ID, CategoryName
        FROM FilmCategory
        ORDER BY CategoryName
    }
}
```

Class View

- CACHE:SAMPLES
 - Aviation
 - BasTutorial
 - Cinema
 - Duration
 - Base Classe
 - LogicalToDis
 - Film
 - Base Classe
 - Category As
 - Default
 - Description A
 - Length As Cir
 - PlayingNow A
 - Rating As %L
 - TicketsSold A
 - Title As %Lib
 - TitleIndex
 - TopCategory
 - TopFilms
 - FilmCategory
 - RemoveCookie
 - Review
 - Base Classe
 - Default
 - Film As Ciner
 - ReviewScore

Find In Files

Output Find In Files

Ready

Line 1/123 Col 1/103 CAP NUM OVR READ



Complex Problems Need Unified Data



Catalog Details

Execute Query

Browse

SQL Statements

Execute

Show Plan

Show History

Query Builder

Display Mode ▾

Max 1000

more

```
select Category->CategoryName, avg(TicketsSold) as AvgSales
from Cinema.Film
where PlayingNow = 1
group by Category
```

Row count: **5** Performance: **0.002** seconds **124** global references **1499** lines executed **0** disk read
latency (ms) Cached Query: [%sqlcq.SAMPLES.cls7](#) Last update: 2024-10-26 11:55:45.256

CategoryName	AvgSales
Drama	27250
Animation	23875
Thriller	22500
Action	23925
Comedy	9750

5 row(s) affected

Big Ideas (2002 edition)



Complex Problems Need Unified Data



Compute and Data: Fully Integrated



```

CACHE/SAMPLES@UnknownUser - Default_prj - Studio - [Cinema.Utills.cls]
File Edit View Project Class Build Debug Tools Utilities Window Help

Cinema.FilmCategory.cls Cinema.Review.cls Cinema.Show.cls Cinema.Theater.cls Cinema.TicketOrder.cls Cinema.Utills.cls
Class View

Class Cinema.Utills Extends (%CSP.SessionEvents, %CSP.Page) [ I
{

=ClassMethod AddShow(ShowID As %Library.String)
{
    // Get an order object
    New itm,ord,shw
    If $data(%session.Data("Order")) {
        Set ord = ##class(Cinema.TicketOrder).%OpenId(%session.Data
    } Else {
        Set ord=##class(Cinema.TicketOrder).%New()
        Set %session.EventClass = "Cinema.Utills"
    }

    // Add an item to the order for this show
}

Find In Files
Output Find In Files
Ready
Line 1/123 Col 1/103 CAP NUM OVR READ
```

Big Ideas (2002 edition)



Complex Problems Need Unified Data



Compute and Data: Fully Integrated



The Web is the Universal App Platform



```
<html>
<head>
<title>Search</title>
</head>

<body bgcolor="#FFFFFF">
<csp:query name=CatList classname="Cinema.FilmCategory" query
<table width="100%" border="0" cellpadding="0" cellspacing="0"
  <tr>
    <td>
    </td>
    <td align="right">
      <form name="Search" action="SearchResults.csp" target=
        <b>Find</b>
        <select name="CategoryList" size="1">
```

Workspace: Default_ (CACHE:SAM) - Classes, Routines, CSP Files, csp/samples, cinema, Search.cs, Other

Find In Files: Output, Find In Files, Ready

Line 3/37 Col 14/22 CAP NUM OVR READ

Big Ideas (2002 edition)



Complex Problems Need Unified Data



Compute and Data: Fully Integrated



The Web is the Universal App Platform

Big Ideas (2002 edition)



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Slashdot.org

News for Nerds
on the Stuff that Matters

[rob's homepage](#) | [contribute story](#) | [older articles](#) | [about](#) | [awards](#) | [supporters](#)

New Kernel

Contributed by [CmdrTaco](#) on Tue Jan 13 at 11:12AM EST

From the download compile report Dept.



Scalability is the Data Platform's Job



Refresh: ☒ off ☐ on 10 sec

ECP Application Servers

The following is a list of ECP application servers that are connected to this system:

Page size: 0 Max rows: 1000 Results: 1 Page: |< << **1** >> >| of 1

Client Name	Status	Client IP	IP Port
DATA1:WS19DEV1S-01:CACHE	Normal	127.0.0.1	64529

Big Ideas (2002 edition)



Complex Problems Need Unified Data



Compute and Data: Fully Integrated



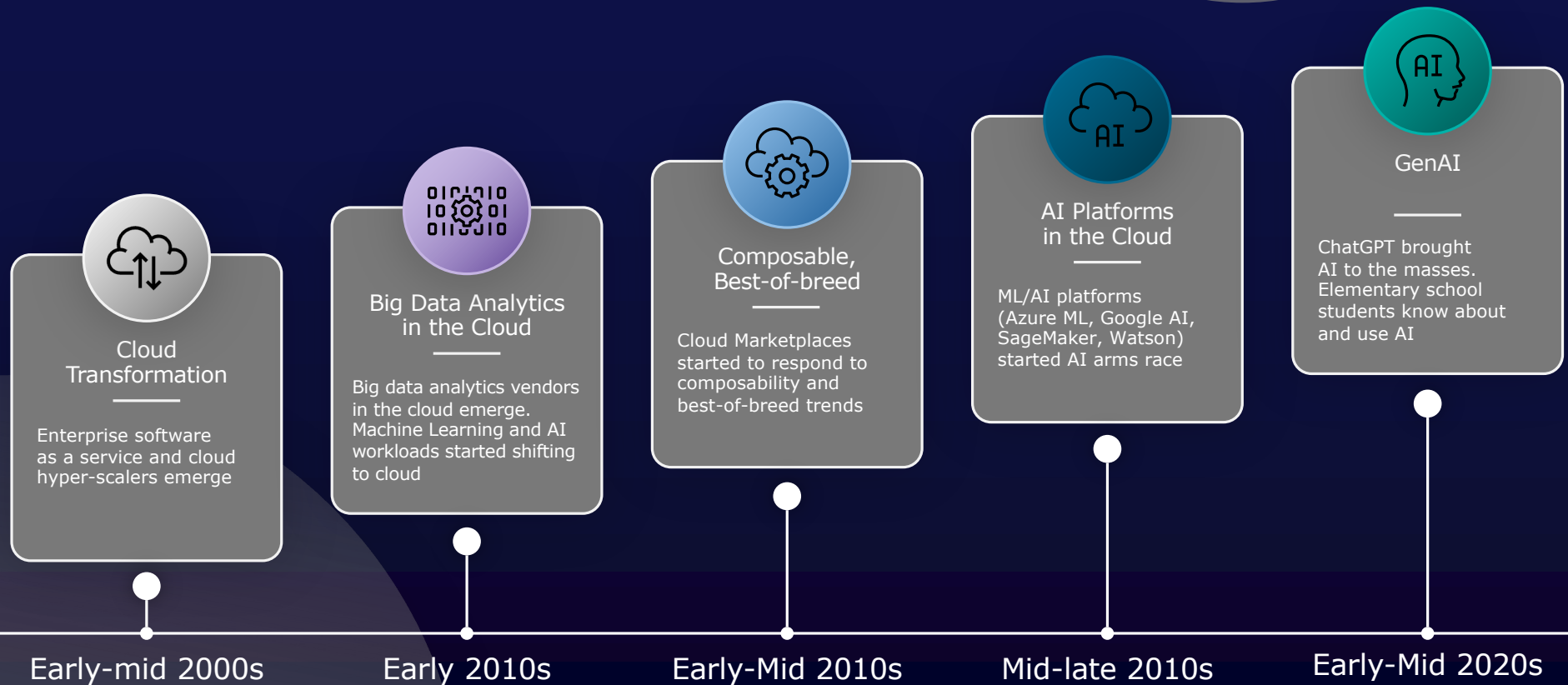
The Web is the Universal App Platform



Scalability is the Data Platform's Job

Living in the Age of Frequent Disruption

Major market rotations in the last 20+ years

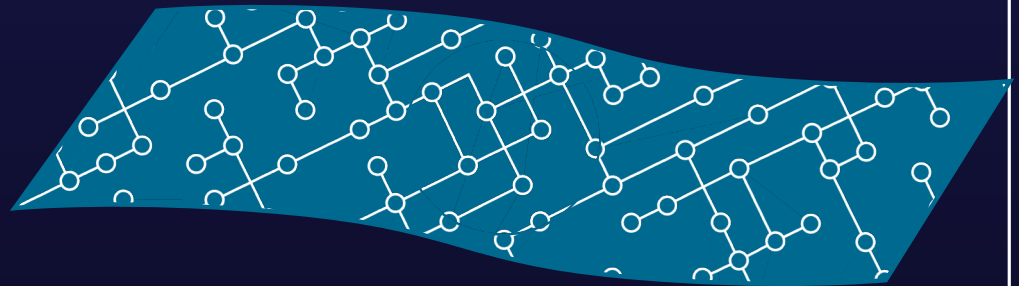




Complex Problems Need Unified Data



**The Common Data Plane
persists values via
highly optimized
multi-dimensional arrays**



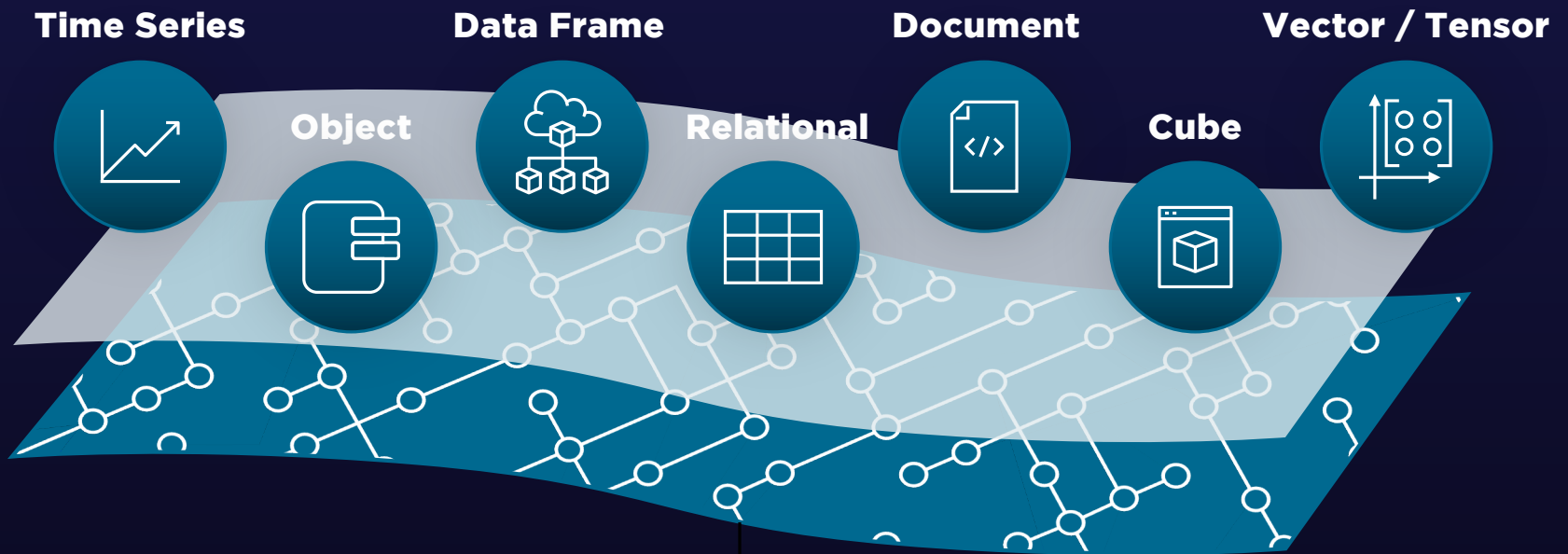
**Multi-key array subscripts enables
advanced index structures with
high-performance lookups & scans**



**Flexible, highly optimized core
data encodings enable the
multi-model architecture**



Complex Problems Need Unified Data



$\text{^global(<key1>,<key2>,...) = \$encoding(<val1>,<val2>,...)}$



Complex Problems Need Unified Data



Lists



```
$list("lcars",1138,88.0,...)
```

Vectors



```
$vector(4.8,15.1,6.23,...)
```

Documents



```
$pva({ "id":10816,  
       "fname":"roy",  
       ... })
```

Bitmaps



```
$bit(1,0,1,0,1,0,...)
```



Complex Problems Need Unified Data



Document

```
{
  "location": "ICU5",
  "collector_name": "Smartlinx5",
  "sensor_name": "BP3",
  "bed_id": 8605,
  "readings": [
    { "start_time": "2024-07-04 10:12:03.642",
      "interval": 3.333,
      "values": [7200, 7300, 7700, 8500, 9100] },
    ... ]
}
```

PUT

GET

Location	Sensor	Date	Time	Value
ICU5	BP3	2024-07-04	10:12:03.642	7200
ICU5	BP3	2024-07-04	10:12:06.975	7300
ICU5	BP3	2024-07-04	10:12:10.308	7700
ICU5	BP3	2024-07-04	10:12:13.641	8500
ICU5	BP3	2024-07-04	10:12:16.974	9100
...



Relational

SELECT

INSERT

```
^wave(202407, "ICU5", 123) = $list("Smartlinx5", "BP3", 8605)
^wave(202407, "ICU5", 123, 1, "ts") = $list("2024-07-04 10:12:03.642", 3.333)
^wave(202407, "ICU5", 123, 1, "v") = $vector(7200, 7300, 7700, 8500, 9100,
```



Complex Problems Need Unified Data



4
8
1
5
16
2
34
2

\$vector:
SIMD-optimized,
compact storage for
columnar analytics



Complex Problems Need Unified Data



4
8
1
5
16
2
34
2



.267	.215	.454	.022	.311	.439	.517	.508	.887
------	------	------	------	------	------	------	------	------

**\$vector, flipped:
SIMD-optimized,
compact storage for AI**



Complex Problems Need Unified Data





Complex Problems Need Unified Data



DBBeaver 24.0.0 - <USER> cinema2024.sql

```
/* From Kaggle: A public film data set */
select title, revenue, overview from Cinema.Film
order by revenue desc;
```

Film 1 x

select title, revenue, overview from Cinema.Film

	title	revenue	overview
1	Avatar	2,787,965,087	In the 22nd century, a paraplegic Marine is dispatched
2	Star Wars: The Force Awakens	2,068,223,624	Thirty years after defeating the Galactic Empire, Han
3	Titanic	1,845,034,188	84 years later, a 101-year-old woman named Rose DeW
4	The Avengers	1,519,557,910	When an unexpected enemy emerges and threatens glob
5	Jurassic World	1,513,528,810	Twenty-two years after the events of Jurassic Park,
6	Furious 7	1,506,249,360	Deckard Shaw seeks revenge against Dominic Toretto a
7	Avengers: Age of Ultron	1,405,403,694	When Tony Stark tries to jumpstart a dormant peaceke
8	Harry Potter and the Deathly	1,342,000,000	Harry, Ron and Hermione continue their quest to vanc
9	Frozen	1,274,219,009	Young princess Anna of Arendelle dreams about findin
10	Beauty and the Beast	1,262,886,337	A live-action adaptation of Disney's version of the

200 row(s) fetched - 0.063s, on 2024-11-04 at 11:12:22



Complex Problems Need Unified Data



DBBeaver 24.0.0 - <USER> cinema2024.sql

SQL Commit Rollback Auto USER SQLUser

```
/* From Future Hollywood: 60 million superhero films: 48 gigabytes */
select count(*) FakeFilmCount from Cinema.HugeFilm;
```

Results 1 x

select count(*) FakeFilmCount from Cinema.HugeFilm Enter a SQL expression to filter results (use Ctrl+Space)

Grid	123 FakeFilmCount
1	61,362,659

Text Record

Refresh Save Cancel Export data 200 1

1 row(s) fetched - 0.021s, on 2024-11-04 at 11:15:33

EST en_US Writable Smart Insert 17:1 [52] Se... 1



Complex Problems Need Unified Data



DBBeaver 24.0.0 - <USER> cinema2024.sql

```
/* Which languages give films the best box office? */
select original_language "Language", round(avg(revenue),0) "AvgRevenue"
from Cinema.HugeFilm
where budget > 1000000 and revenue > 1000000
group by "Language"
order by "AvgRevenue" desc;
```

HugeFilm 1 x

Select original_language "Language", round(avg(revenue),0) "AvgRevenue" from Cinema.HugeFilm where budget > 1000000 and revenue > 1000000 group by "Language" order by "AvgRevenue" desc;

	Language	AvgRevenue
1	ZH	166,896,460
2	EN	131,707,939
3	TE	97,949,410
4	JA	59,961,744
5	CN	57,888,992
6	KO	47,383,976
7	XX	37,345,269
8	HI	31,554,216
9	TA	30,937,849
10	FR	26,365,507

Refresh Save Cancel Export data 200 30

30 row(s) fetched - 3s, on 2024-11-04 at 11:18:35

EST en_US Writable Smart Insert 31:1 [185] Se... 5



Complex Problems Need Unified Data



DBBeaver 24.0.0 - <USER> cinema2024.sql

```
/* Which languages give films the best box office? */
select original_language "Language", round(avg(revenue),0) "AvgRevenue"
from Cinema.HugeFilm
where budget > 1000000 and revenue > 1000000
group by "Language"
order by "AvgRevenue" desc;
```

HugeFilm 1 x

Grid	Language	AvgRevenue
1	ZH	166,896,460
2	EN	131,707,939
3	TE	97,949,410
4	JA	59,961,744
5	CN	57,888,992
6	KO	47,383,976

30 row(s) fetched – 3s

30 row(s) fetched – 3s, on 2024-11-04 at 11:18:35

EST en_US Writable Smart Insert 31:1 [185] Se... 5



Complex Problems Need Unified Data



```
DBBeaver 24.0.0 - <USER> cinema2024.sql

SQL | Commit | Rollback | Auto | USER | SQLUser

*<USER> cinema2024.sql x

•/* Accelerate analytics to transactional speeds with columnar
  * -- powered by $vector! */
create columnar index huge_budget_col on Cinema.HugeFilm(budget);

create columnar index huge_revenue_col on Cinema.HugeFilm(revenue);

create columnar index huge_language_col on Cinema.HugeFilm(original_language);

EST | en_US | Writable | Smart Insert | 63 : 1 : 892 | Se... 0 :
```



Complex Problems Need Unified Data



DBBeaver 24.0.0 - <USER> cinema2024.sql

```
/* Now let's see which languages are the most profitable for filmmakers... */
select original_language "Language",
       round(avg(revenue / budget),0) * 100 "AvgProfitPct"
from Cinema.HugeFilm
where budget > 1000000 and revenue > 1000000
group by "Language"
order by "AvgProfitPct" desc;
```

HugeFilm 1 x

Select original_language "Language", round(avg(revenue / budget),0) * 100 "AvgProfitPct" Enter a SQL expression to filter results (use Ctrl+Space)

	Language	AvgProfitPct
1	ZH	1,100
2	PL	700
3	TR	700
4	KO	600
5	TE	600
6	DE	500
7	EN	400
8	HI	400
9	JA	400
10	AF	300

Refresh Save Cancel Export data 200 30

30 row(s) fetched - 0.283s, on 2024-11-04 at 11:25:18

EST en_US Writable Smart Insert 66 : 1 [206] Se... 6



Complex Problems Need Unified Data



DBBeaver 24.0.0 - <USER> cinema2024.sql

```
/* Now let's see which languages are the most profitable for filmmakers... */
select original_language "Language",
       round(avg(revenue / budget),0) * 100 "AvgProfitPct"
from Cinema.HugeFilm
where budget > 1000000 and revenue > 1000000
group by "Language"
order by "AvgProfitPct" desc;
```

HugeFilm 1 x

Grid	Language	AvgProfitPct
1	ZH	1,100
2	PL	700
3	TR	700
4	KO	600
5	TE	600
6	DE	500

30 row(s) fetched – 0.283s

30 row(s) fetched – 0.283s, on 2024-11-04 at 11:25:18

EST en_US Writable Smart Insert 66 : 1 [206] Se... 6



Complex Problems Need Unified Data



DBBeaver 24.0.0 - <USER> cinema2024.sql

SQL | Commit | Rollback | Auto | USER | SQLUser

/* More than meets the eye: Our data is AI-enabled! */
select title, overview, overviewembedding from Cinema.Film;

Film 1 x

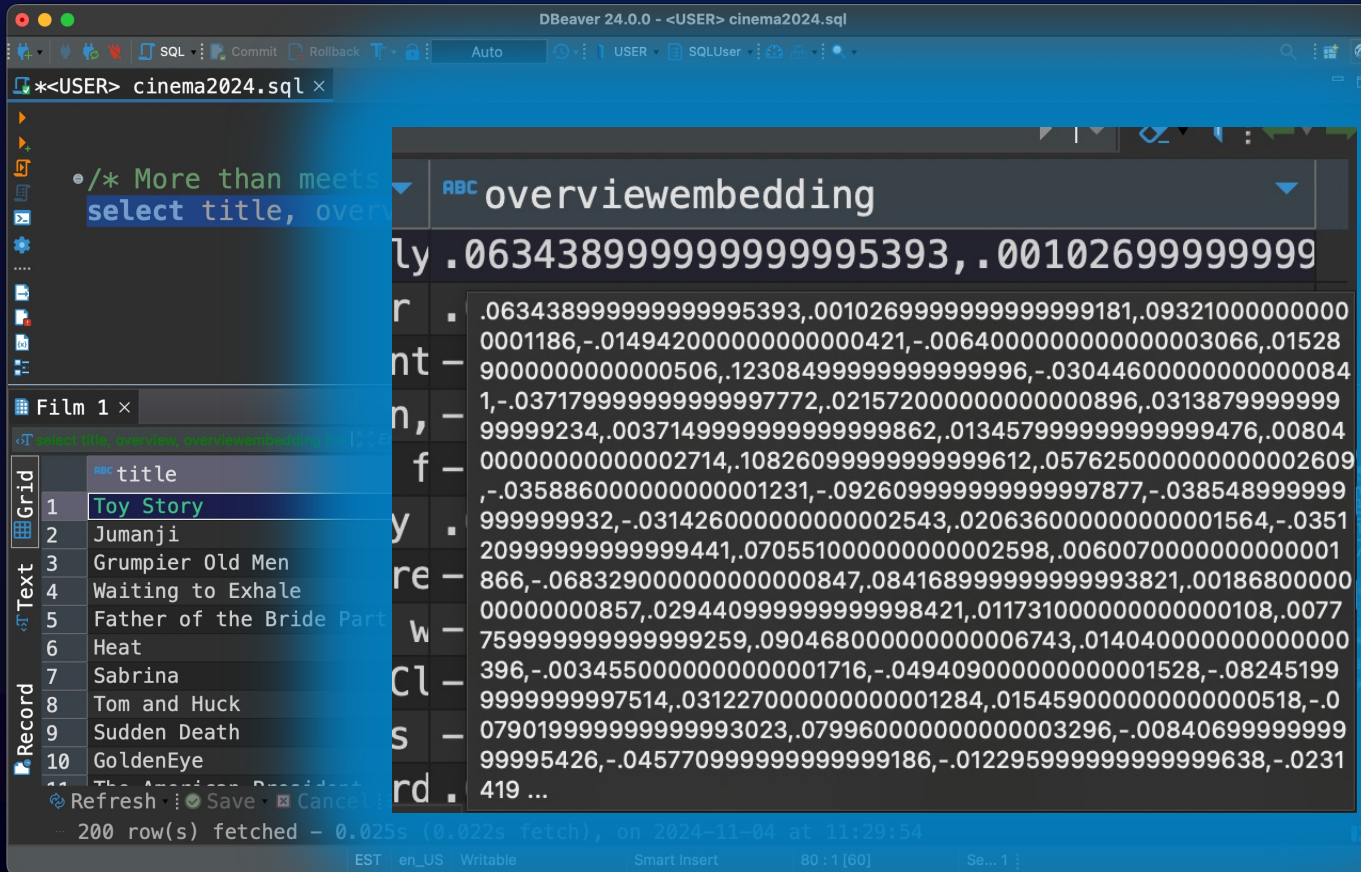
select title, overview, overviewembedding from Cinema.Film

	title	overview	overviewembedding
1	Toy Story	Led by Woody, Andy's toys live happi	.06343899999999995393,.001026999999
2	Jumanji	When siblings Judy and Peter discover	.086305999999999993832,.044615000000
3	Grumpier Old Men	A family wedding reignites the ancie	-.10087599999999999346,.037442000000
4	Waiting to Exhale	Cheated on, mistreated and stepped o	-.055419000000000002981,-.0145120000
5	Father of the Bride Part II	Just when George Banks has recovered	-.031385999999999997234,-.0693060000
6	Heat	Obsessive master thief, Neil McCaule	.019724999999999999478,-.024101999999
7	Sabrina	An ugly duckling having undergone a	-.0054929999999999996191,.028296999999
8	Tom and Huck	A mischievous young boy, Tom Sawyer,	-.134953999999999999063,.026835999999
9	Sudden Death	International action superstar Jean	-.0754360000000000003051,.029122999999
10	GoldenEye	James Bond must unmask the mysteriou	-.0883889999999999995349,.082050999999

Refresh | Save | Cancel | Export data | 200 | 200+ |

200 row(s) fetched - 0.025s (0.022s fetch), on 2024-11-04 at 11:29:54

EST en_US Writable Smart Insert 80 : 1 [60] Ser... 1





Complex Problems Need Unified Data



DBeaver 24.0.0 - <USER> cinema2024.sql

```
/* Semantic matching through a massively multidimensional vector space */
select top 10
  Film.title,
  Film.overview,
  vector_cosine(
    overviewembedding,
    Cinema.Film_Embed('adventures in the frozen wilderness')) similarity
from Cinema.Film
order by similarity desc
```

Film 1 x

Enter a SQL expression to filter results (use Ctrl+Space)

Grid	title	overview	similarity
1	Frozen Planet	Frozen Planet takes you on the ultimate pola	0.6168095301
2	Peter Pan	Childrens' adventures in Neverland.	0.5977465725
3	Cold River	Based on the novel Winterkill, by William Ju	0.5861474227
4	Winter Nomads	Pascal, 53, and Carole, 28, are shepherds. I	0.5645698922
5	10,000 BC	A prehistoric epic that follows a young mamr	0.5445204041
6	Nanook of the North	This pioneering documentary film depicts the	0.5414950218
7	Backlight	Several characters who are each at critical	0.5340198377
8	White Wolves - A Cry in the Wild II	A two-week trek through the Cascade Mountain	0.5340081787
9	Shackleton's Antarctic Adventure	Shackleton's Antarctic Adventure is a giant-	0.5272032292
10	Jack Frost 2: Revenge of the Mutant Killer S	The sheriff and his deputies from the first	0.5256908465

Refresh Save Cancel K < > X Export data 200 10

10 row(s) fetched - 2s, on 2024-11-04 at 11:33:48

EST en_US Writable Smart Insert 95 : 1 [196] Sel: ...6 | 8



Complex Problems Need Unified Data



DBeaver 24.0.0 - <USER> cinema2024.sql

```
/*
My personal film reviews: No LLM has been trained on these!!
Note I do NOT like horror films... this will be important later...
*/
select top 10
  Film.title,
  Film.overview,
  Review.star_rating
from Cinema.Film join Cinema.Review on Film.imdb_id = Review.imdb_id
order by Film.title
```

Film(+) 1 x

select top 10 Film.title, Film.overview, Review.star_rating | Enter a SQL expression to filter results (use Ctrl+Space)

	title	overview	star_rating
1	10 Things I Hate About You	Bianca, a tenth grader, has never gone on a date, but she	4
2	2001: A Space Odyssey	Humanity finds a mysterious object buried beneath the luna	5
3	2010	This is a sequel to 2001 A Space Odyssey. It is now 2010 a	5
4	28 Days Later	Twenty-eight days after a killer virus was accidentally un	0
5	28 Weeks Later	In this chilling sequel to 28 Days Later, the inhabitants	0
6	A Beautiful Mind	At Princeton University, John Nash struggles to make a wor	4
7	A Few Good Men	When cocky military lawyer Lt. Daniel Kaffee and his co-co	5
8	A.I. Artificial Intelligence	A robotic boy, the first programmed to love, David is adop	4
9	Ace Ventura: Pet Detective	He's Ace Ventura: Pet Detective. Jim Carrey is on the case	3
10	Air Force One	Russian terrorists conspire to hijack the aircraft with th	2

Refresh | Save | Cancel | Export data | 200 | 10 |

10 row(s) fetched - 0.036s, on 2024-11-04 at 11:38:01

EST en_US Writable Smart Insert 113 : 20 [152] Sel: ...2 | 6 |



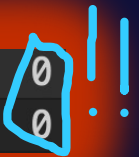
Complex Problems Need Unified Data



```
DBeaiver 24.0.0 - <USER> cinema2024.sql

/*
My personal film reviews: No LLM has been trained on these!!
Note I do NOT like horror films... this will be important later...
*/
select top 10
  Film.title,
  Film.overview,
  Review.star_rating
from Cinema.Film join Cinema.Review on Film.imdb_id = Review.imdb_id
order by Film.title
```

28 Days Later	Twenty-eight days after a killer virus was accidentally un
28 Weeks Later	In this chilling sequel to 28 Days Later, the inhabitants



5	28 Weeks Later	In this chilling sequel to 28 Days Later, the inhabitants	0
6	A Beautiful Mind	At Princeton University, John Nash struggles to make a wor	4
7	A Few Good Men	When cocky military lawyer Lt. Daniel Kaffee and his co-co	5
8	A.I. Artificial Intelligence	A robotic boy, the first programmed to love, David is adop	4
9	Ace Ventura: Pet Detective	He's Ace Ventura: Pet Detective. Jim Carrey is on the case	3
10	Air Force One	Russian terrorists conspire to hijack the aircraft with th	2

Refresh · Save · Cancel · Export data · 200 · 10
10 row(s) fetched - 0.036s, on 2024-11-04 at 11:38:01
EST en_US Writable Smart Insert 113 : 20 [152] Sel: ...2 | 6



Complex Problems Need Unified Data



DBeaver 24.0.0 - <USER> cinema2024.sql

```
/* Can we find semantically relevant reviews...
 * ... by combining structured and unstructured data? */
select top 10
  Film.title,
  Film.overview,
  Review.star_rating,
  vector_cosine(
    overviewembedding,
    Cinema.Film_Embed('An epic space journey')) vector_distance
from Cinema.Film join Cinema.Review on Film.imdb_id = Review.imdb_id
order by vector_distance desc
```

Film(+) 1 x

Enter a SQL expression to filter results (use Ctrl+Space)

	title	overview	star_rating	vector_distance
1	Prometheus	A team of explorers discover a clue	3	0.5446902791
2	Interstellar	Interstellar chronicles the adventur	5	0.5202012456
3	The Last Starfighter	A video game expert Alex Rogan finds	4	0.5101574273
4	Star Trek Beyond	The USS Enterprise crew explores the	3	0.5003006388
5	The Black Hole	The explorer craft U.S.S. Palomino i	4	0.4032529883
6	Star Trek IV: The Voyage Home	Fugitives of the Federation for thei	4	0.3962606337
7	Event Horizon	In the year 2047 a group of astronau	3	0.3879056122
8	Gattaca	Science fiction drama about a future	3	0.3859424335
9	Ender's Game	Based on the classic novel by Orson	4	0.3819482903
10	Star Trek	The fate of the galaxy rests in the	4	0.3753836677

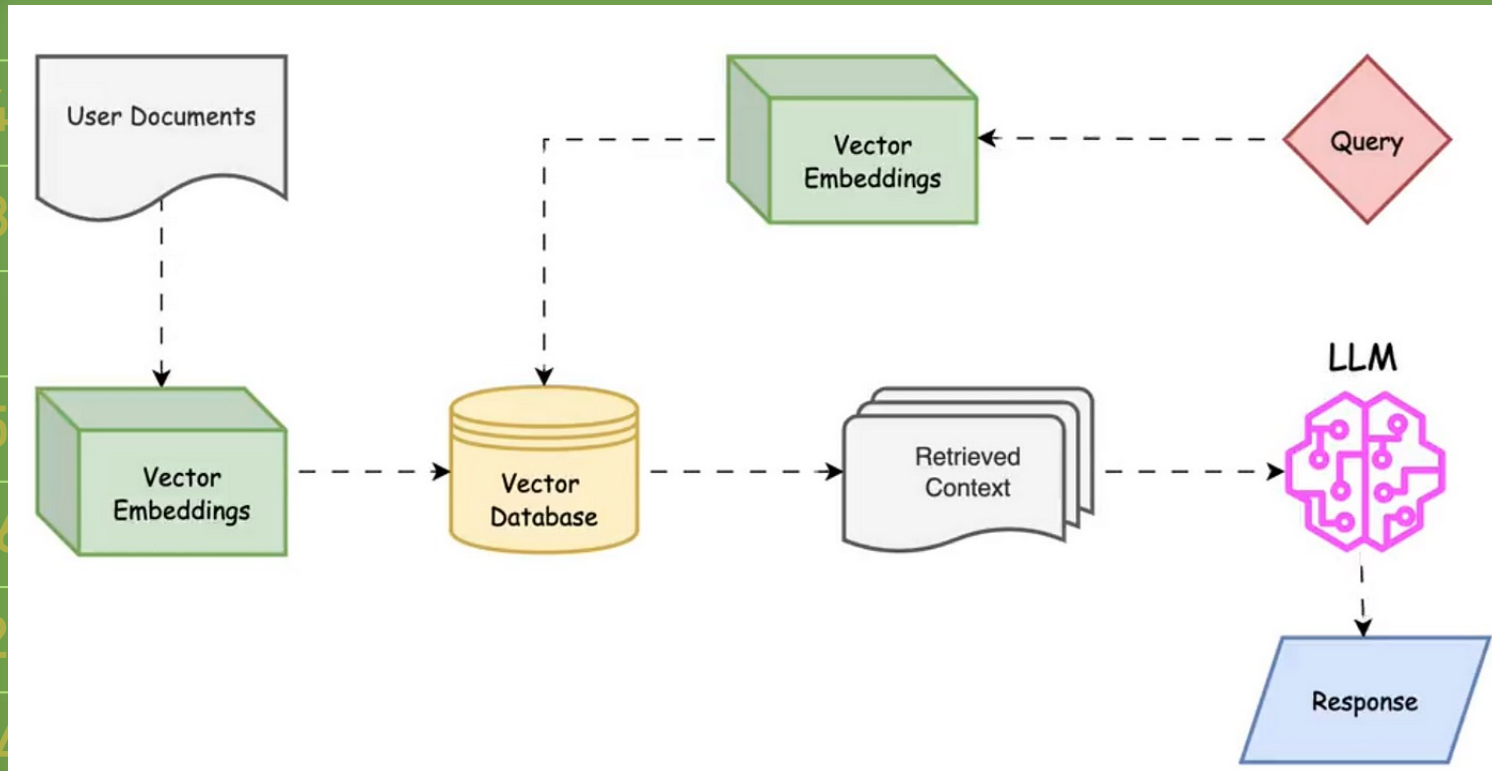
Refresh Save Cancel K < > X Export data 200 10

10 row(s) fetched - 1s, on 2024-11-04 at 11:43:34

EST en_US Writable Smart Insert 134 : 30 [264] Sel: ...4 | 9



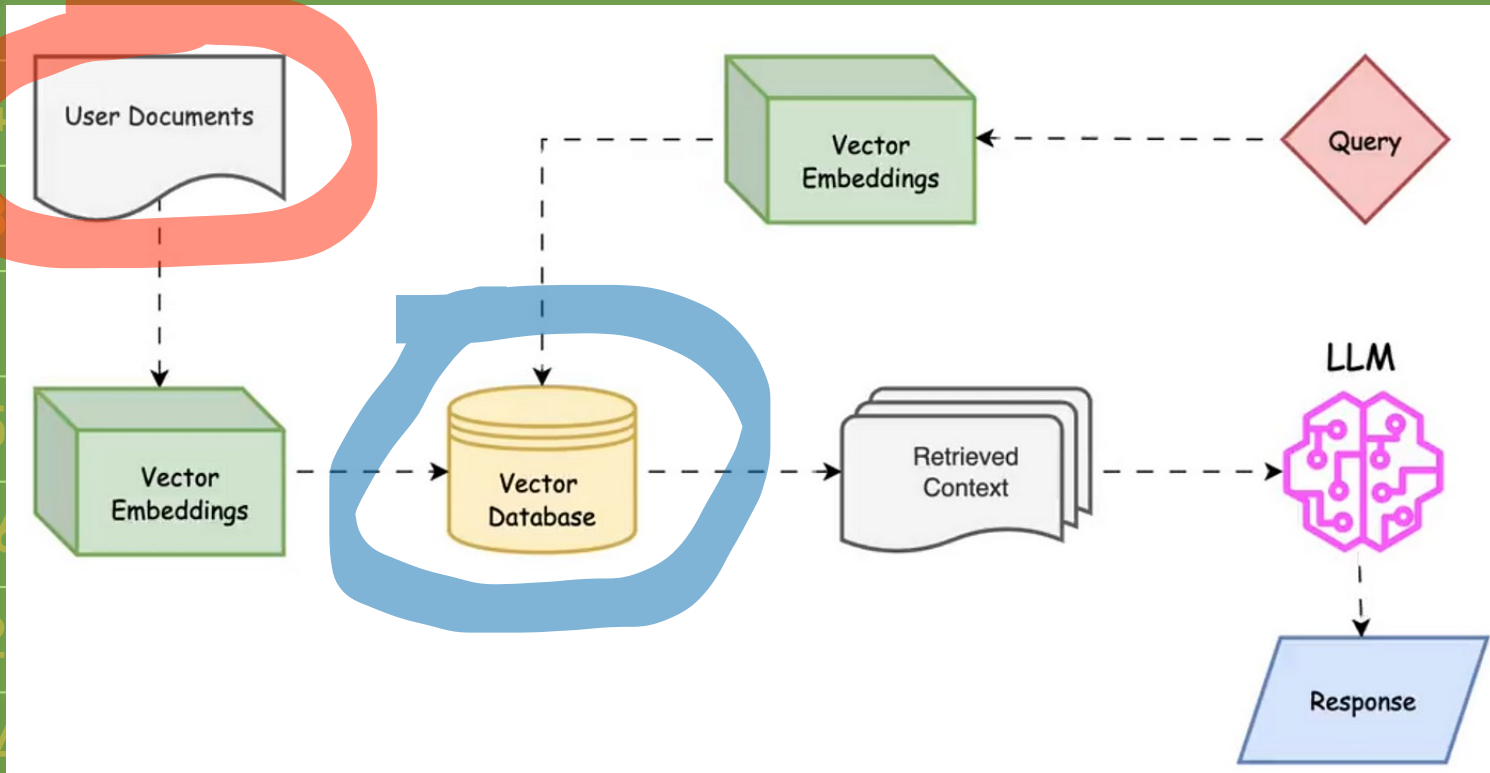
Complex Problems Need Unified Data



LLM optimized,
compact storage for AI



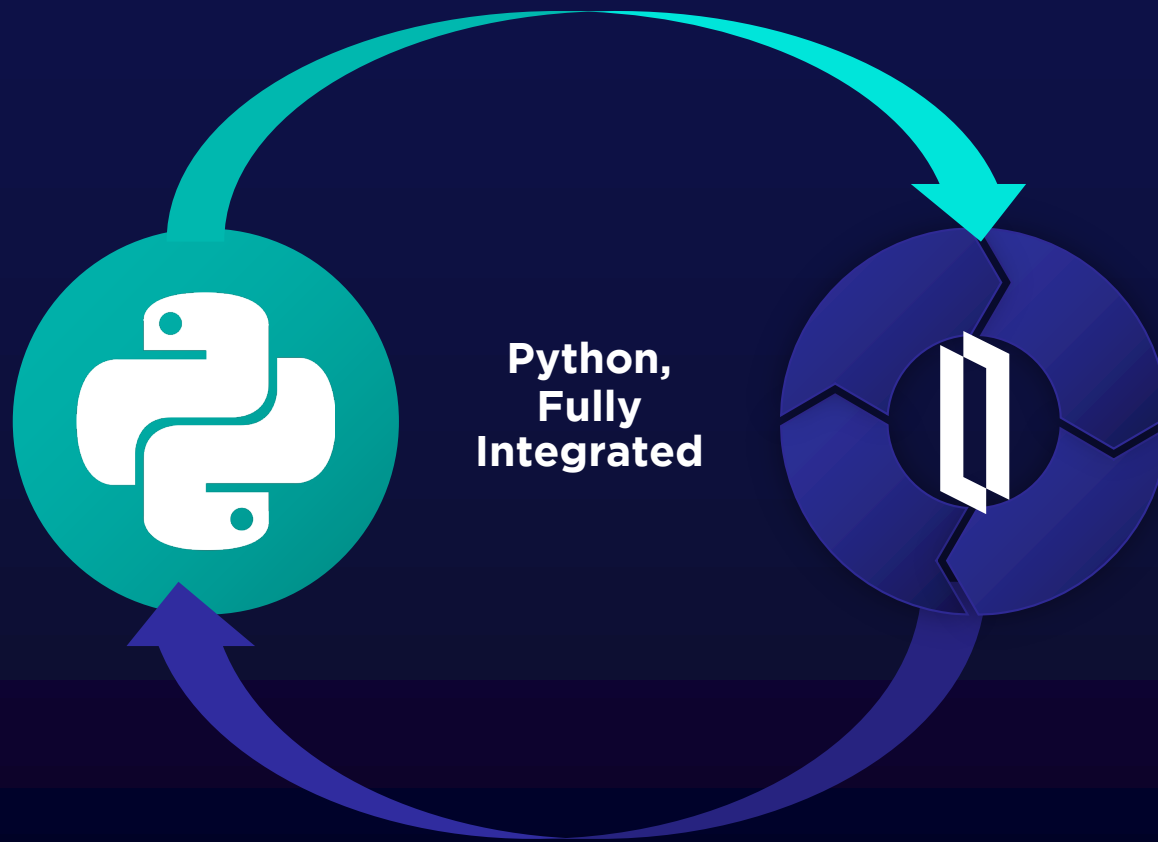
Complex Problems Need Unified Data



compact storage for AI



Compute and Data: Fully Integrated





Compute and Data: Fully Integrated



The screenshot shows a web browser window with the URL `ray.io`. The page features the Ray logo (a blue cube icon) and the word "RAY" in the top left. The main heading is "Ray is the AI Compute Engine". Below this, a paragraph states: "Ray manages, executes, and optimizes compute needs across AI workloads. It unifies infrastructure via a single, flexible framework—enabling any AI workload from data processing to model training to model serving and beyond." A blue button labeled "Read Docs" is positioned below the paragraph. At the bottom, there are three white boxes with icons and text: "Developer Training" (with a book icon), "Ray Slack" (with a Slack icon), and "Get Expert Help" (with a checkmark icon).

Ray is the AI Compute Engine

Ray manages, executes, and optimizes compute needs across AI workloads. It unifies infrastructure via a single, flexible framework—enabling any AI workload from data processing to model training to model serving and beyond.

[Read Docs](#)

Developer Training
Live or virtual training led

Ray Slack
Join the conversation and

Get Expert Help
Accelerate your Ra



Compute and Data: Fully Integrated



Ray

Ray is the AI Compute Platform

Ray manages, executes, and optimizes compute needs across your infrastructure via a single, flexible framework—enabling everything from data processing to model training to model serving

[Read Docs](#)

Developer Training
Live or virtual training led by experts

Ray Slack
Join the conversation and get help from the community

Get Expert Help
Accelerate your Ray journey with our experts

aws About AWS Contact Us Support My Account Sign In Create an AWS Account

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AWS Open Source Blog

Amazon's Exabyte-Scale Migration from Apache Spark to Ray on Amazon EC2

by Patrick Ames, Jules Damji, and Zhe Zhang | on 25 JUL 2024 | in [Amazon EC2](#), [Customer Solutions](#), [Open Source](#) | [Permalink](#) | [Comments](#) | [Share](#)

Large-scale, distributed compute framework migrations are not for the faint of heart. There are backwards-compatibility constraints to maintain, performance expectations to meet, scalability limits to overcome, and the omnipresent risk of introducing breaking changes to production. This all becomes especially troubling if you happen to be migrating away from something that successfully processes exabytes of data daily, delivers critical business insights to tens of thousands of customers that depend on it.

Resources

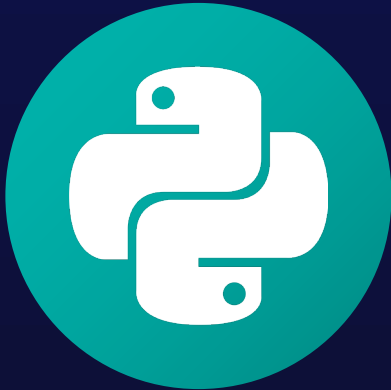
[Open Source at AWS](#)
[Projects on GitHub](#)

Follow

[AWS Open Source](#)



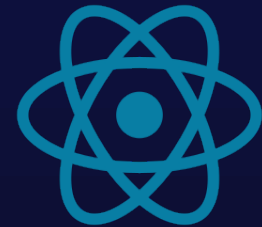
The Web is the Universal App Platform



django



Angular

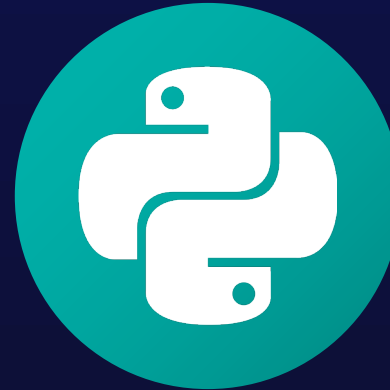




The Web is the Universal App Platform



Web
Services
Gateway
Interface





The Web is the Universal App Platform



System > Security Management > Web Applications

Web Applications

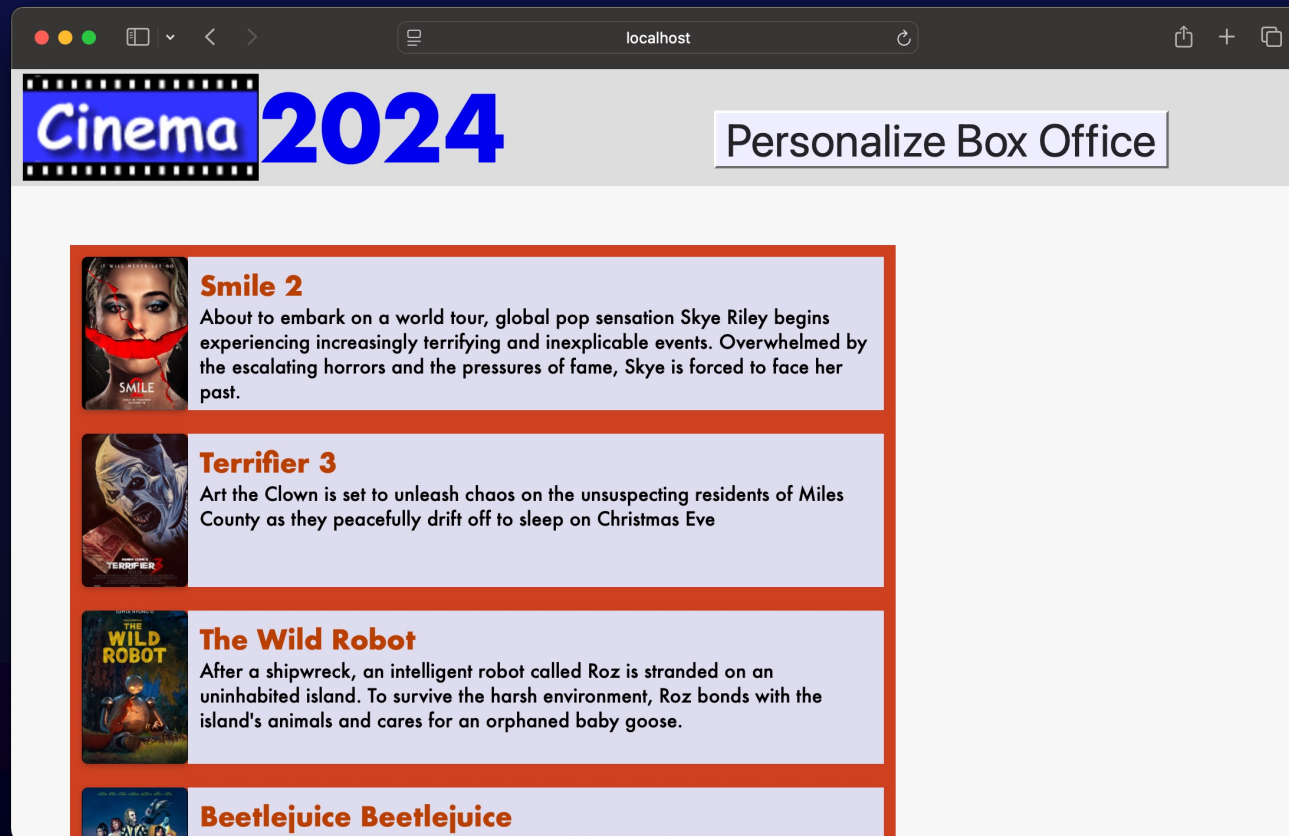
Create New Web Application

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/api/uima	%SYS	No	Yes	%Api.UIMA	Password	Delete
/csp/cinema2024	USER	No	Yes	%SYS.Python.WSGI	Unauthenticated	Delete
/csp/cinemastatic	USER	No	Yes		Unauthenticated	Delete
/csp/trion	USER	No	Yes	%SYS.Python.WSGI	Unauthenticated	Delete
/csp/user	USER	Yes	Yes	Fountain.Head	Unauthenticated	Delete
/isc/studio/usertemplates	%SYS	No	Yes		Password Unauthenticated	Delete

Big Ideas (2024 edition)



Big Ideas (2024 edition)



Big Ideas (2024 edition)



Big Ideas (2024 edition)



Cinema2024

Personalize Box Office



Smile 2

About to embark on a world tour, global pop sensation Skye Riley begins experiencing increasingly terrifying and inexplicable events. Overwhelmed by the escalating horrors and the pressures of fame, Skye is forced to face her past.



Terrifier 3

Art the Clown is set to unleash chaos on the unsuspecting residents of Miles County as they peacefully drift off to sleep on Christmas Eve



The Wild Robot

After a shipwreck, an intelligent robot called Roz is stranded on an uninhabited island. To survive the harsh environment, Roz bonds with the island's animals and cares for an orphaned baby goose.



Beetlejuice Beetlejuice

After a family tragedy, three generations of the Deetz family return home to Winter River. Still haunted by Beetlejuice, Lydia's life is turned upside down when her teenage daughter, Astrid, accidentally opens the portal to the



Joker: Folie à Deux

Aligns with preference for dark, character-driven dramas like The Godfather and Catch Me If You Can.



The Nightmare Before Christmas

Blends festive storytelling with dark, fantastical elements, similar to The Shining and GoodFellas.



Saturday Night

Appeals due to interest in complex, behind-the-scenes narratives, as seen in Casino and Watchmen.

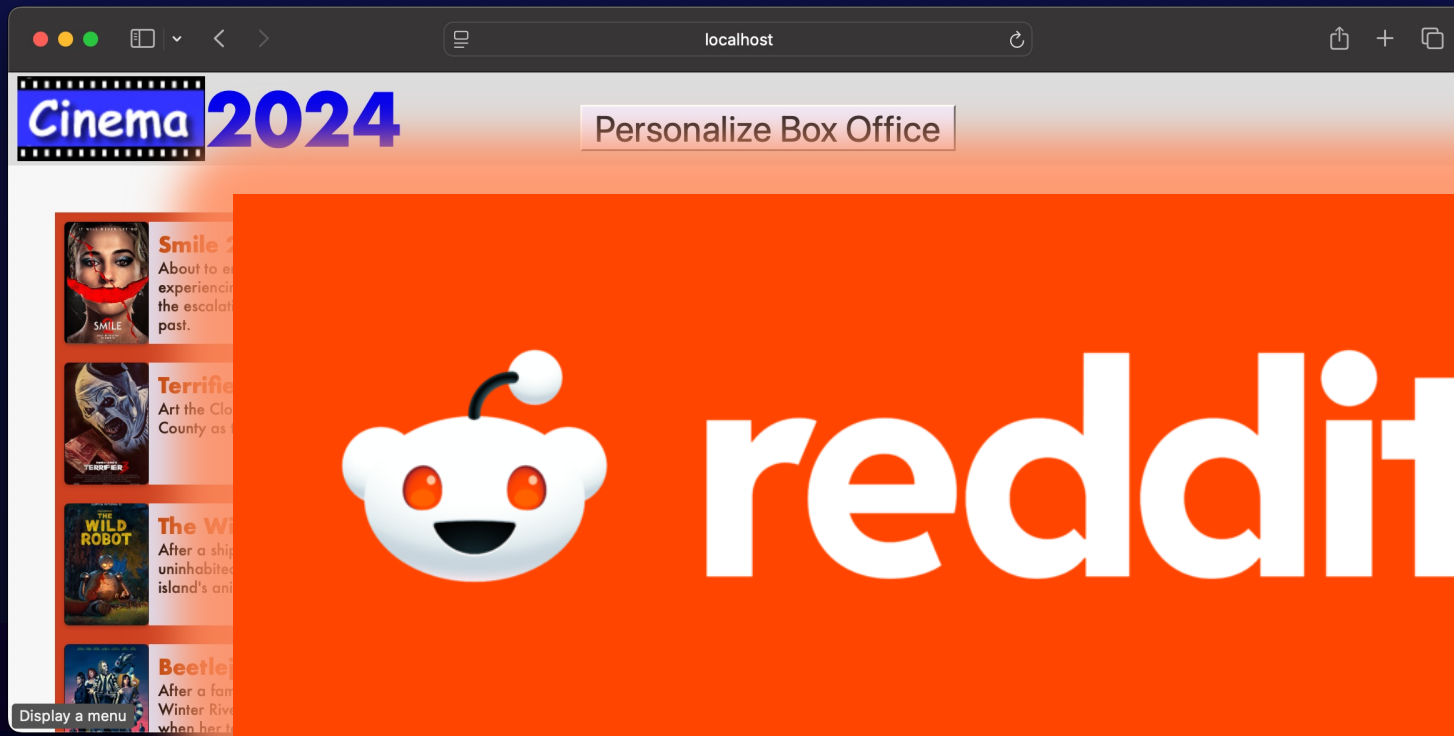


Beetlejuice Beetlejuice

Mix of humor and supernatural elements aligns with high ratings for The Shining and National Lampoon's Christmas Vacation.

Display a menu

Big Ideas (2024 edition)





Scalability is the Data Platform's Job



Enterprise Cache Protocol: a consistent, distributed cache

Fully Transparent

Keeps data distribution and system topology independent from the application
Application has a consistent logical view on all the data
Builds recovery and consistency guarantees into the fabric



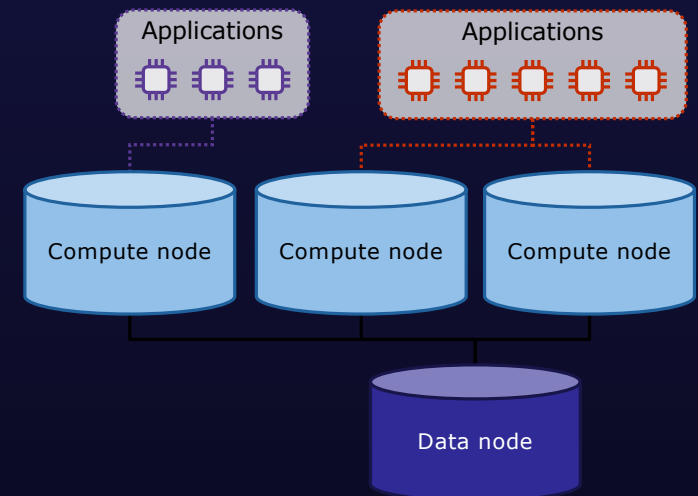
Fully Elastic

Scales in and out in mere seconds
Great fit for multicloud and hybrid scenarios



Easy to Organize

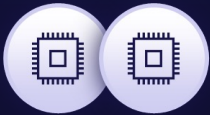
100% homogeneous architecture
Segregate workloads on right-sized infrastructure



Elastic Scaleout with ECP and IKO



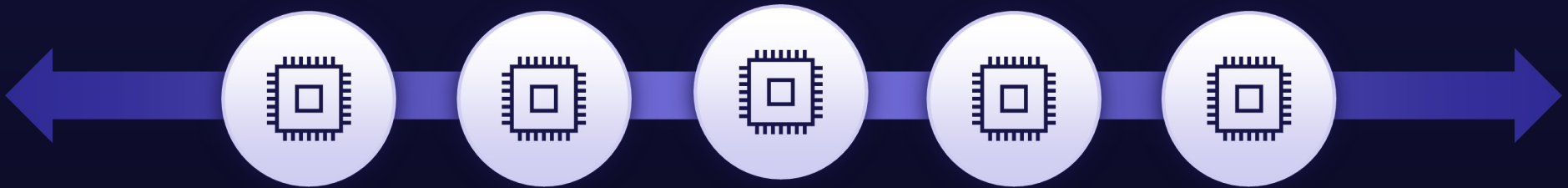
Data Servers
Mirrored Pair



Compute Nodes
(ECP Clients)

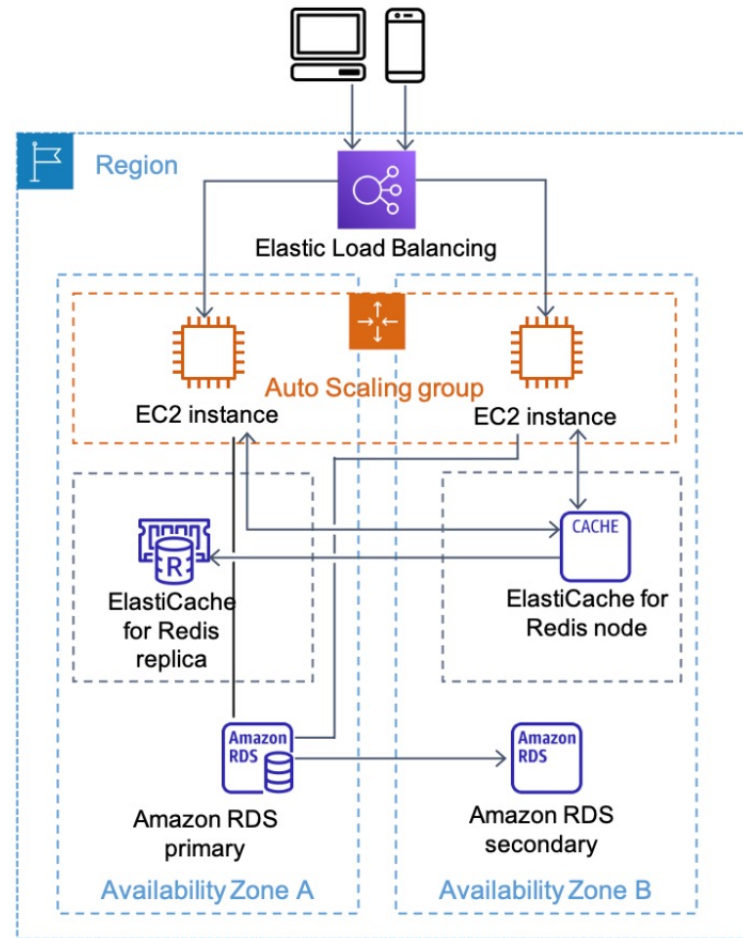
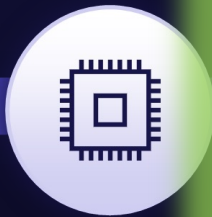
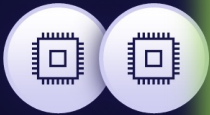


kubernetes

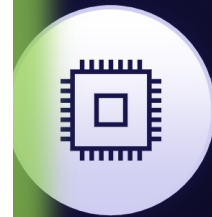


Elastic Scaleout

Data Servers
Mirrored Pair

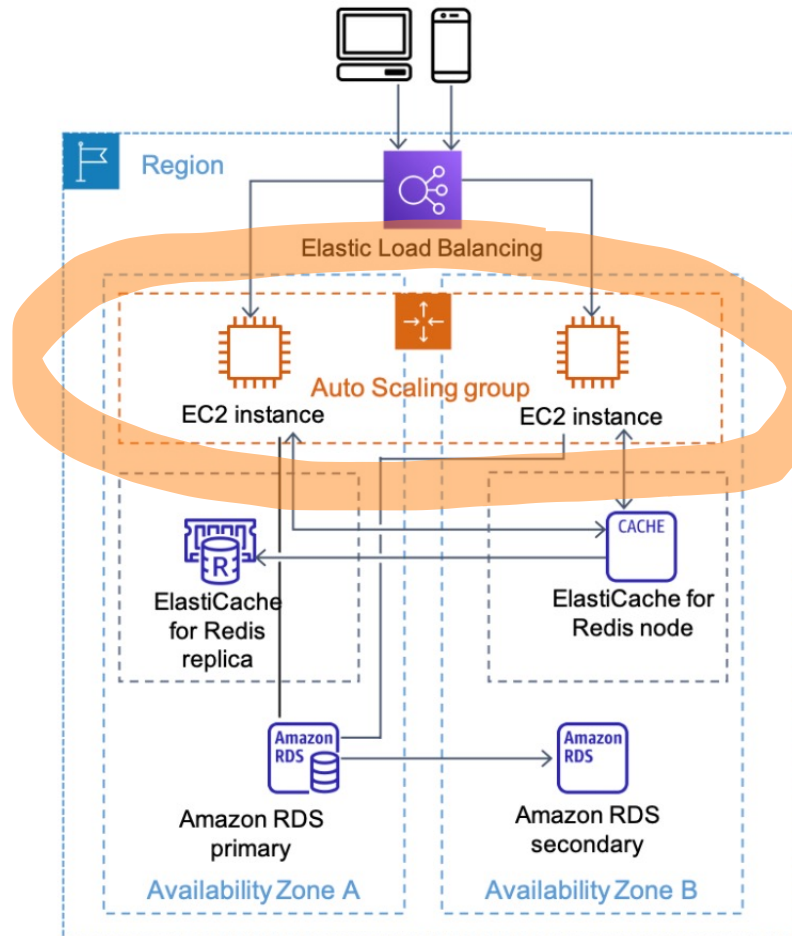
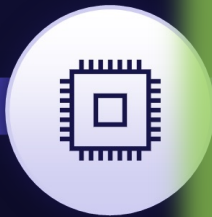
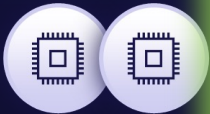


 **bernetes**

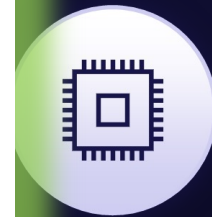


Elastic Scaleout

Data Servers
Mirrored Pair

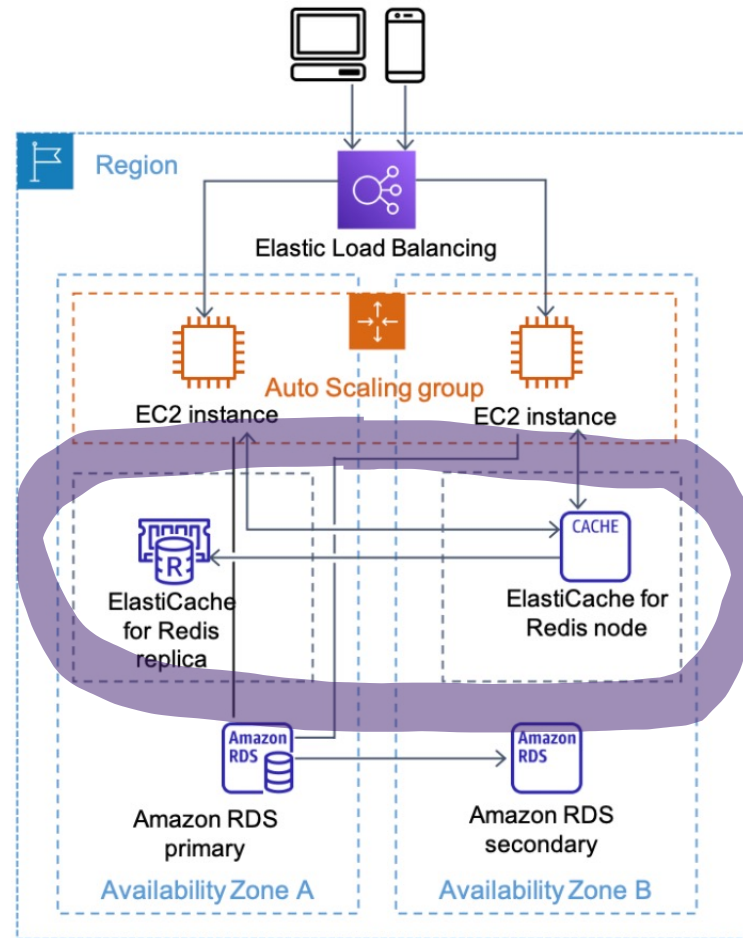
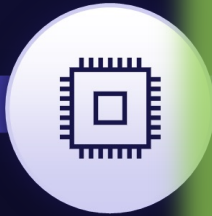
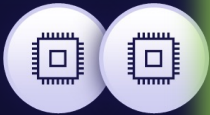


 Kubernetes

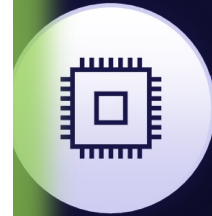


Elastic Scaleout

Data Servers
Mirrored Pair

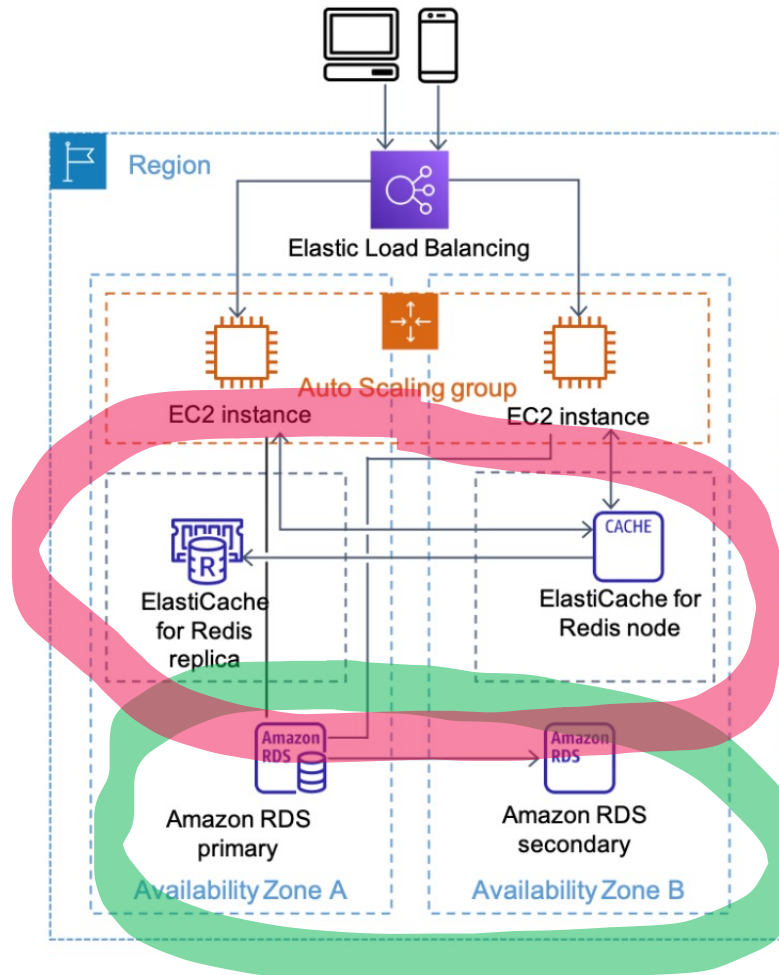
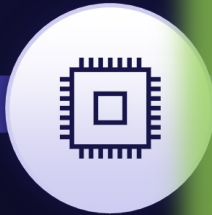
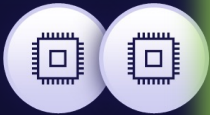


 **kubernetes**

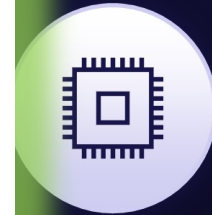


Elastic Scaleout

Data Servers
Mirrored Pair

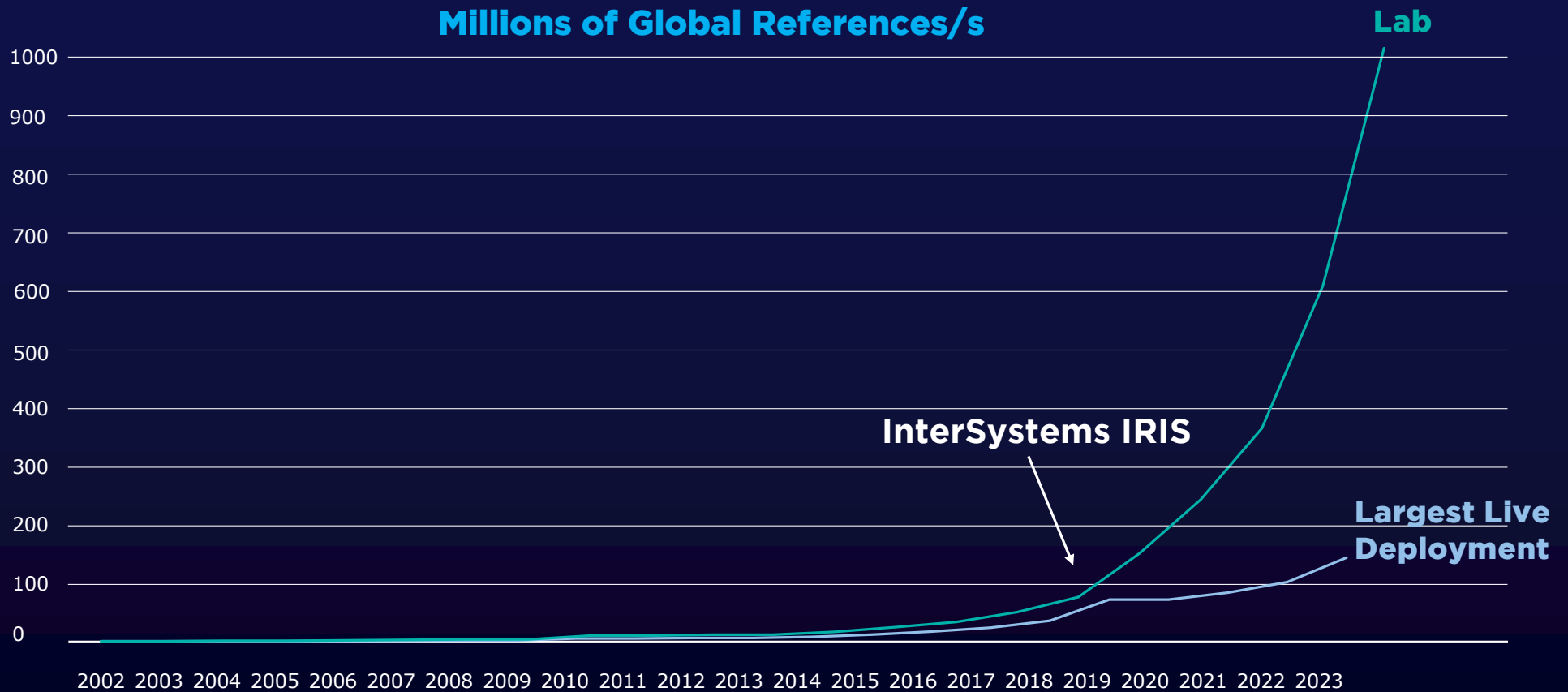


 **kubernetes**





Scalability is the Data Platform's Job





Scalability is the Data Platform's Job



Millions Global References/s

aws

Amazon DynamoDB – DynamoDB powers multiple high-traffic Amazon properties and systems including [Alexa](#), the [Amazon.com](#) sites, and all [Amazon fulfillment centers](#). Over the course of Prime Day, these sources made trillions of calls to the DynamoDB API. DynamoDB maintained high availability while delivering single-digit millisecond responses and **peaking at 126 million requests per second.**

InterSystems IRIS

Lab

Largest Live Deployment

2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023

Big Ideas, Persisting



Complex Problems Need Unified Data



Compute and Data, Fully Integrated



The Web is the Universal App Platform



Scalability is the Data Platform's Job



Danke / Thank You

Tom Woodfin

Head of Development
InterSystems Data Platforms

woodfin@intersystems.com