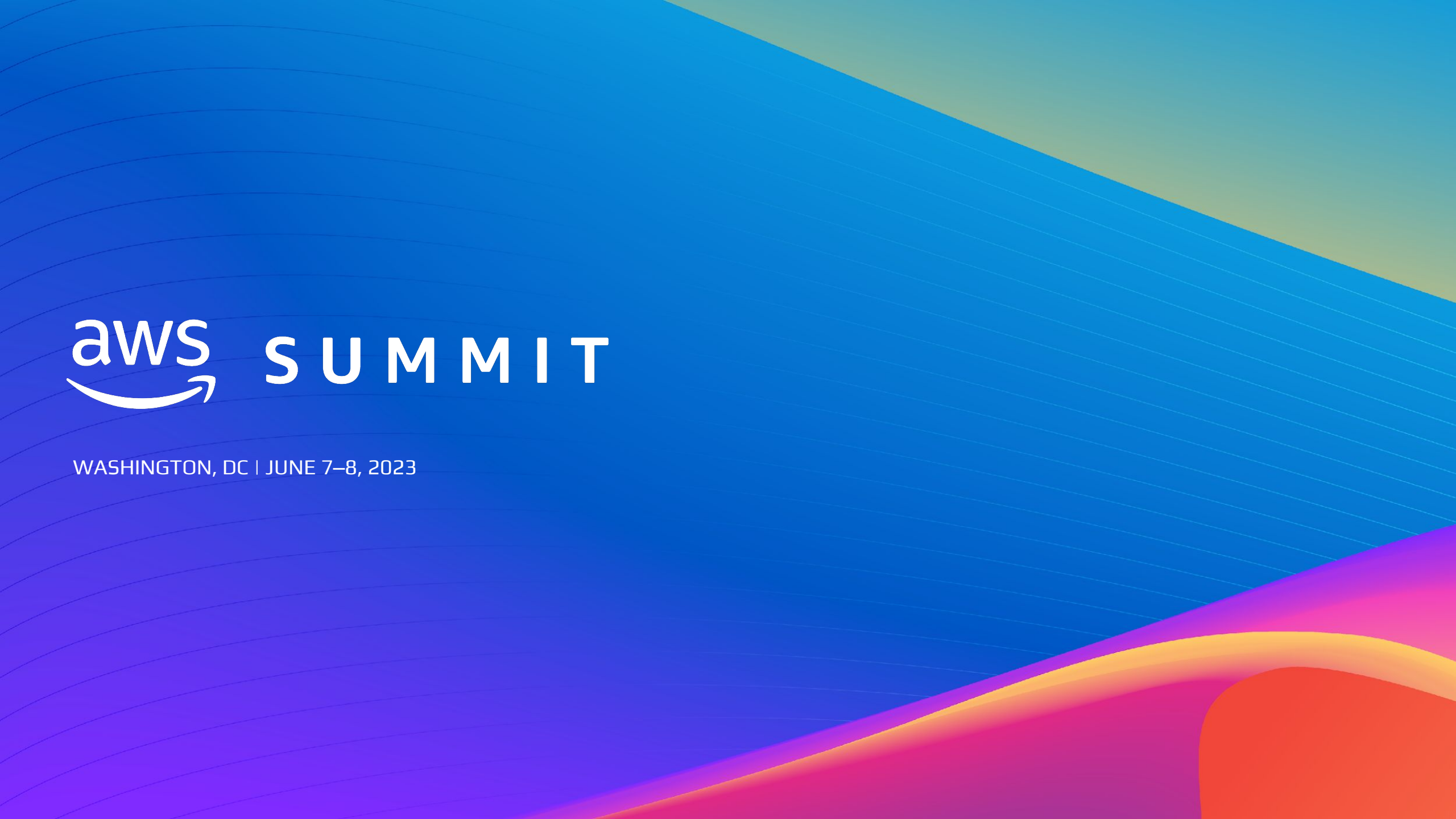
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SUMMIT
WASHINGTON, DC | JUNE 7–8, 2023

DEV205

AWS AppSync by example

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Agenda

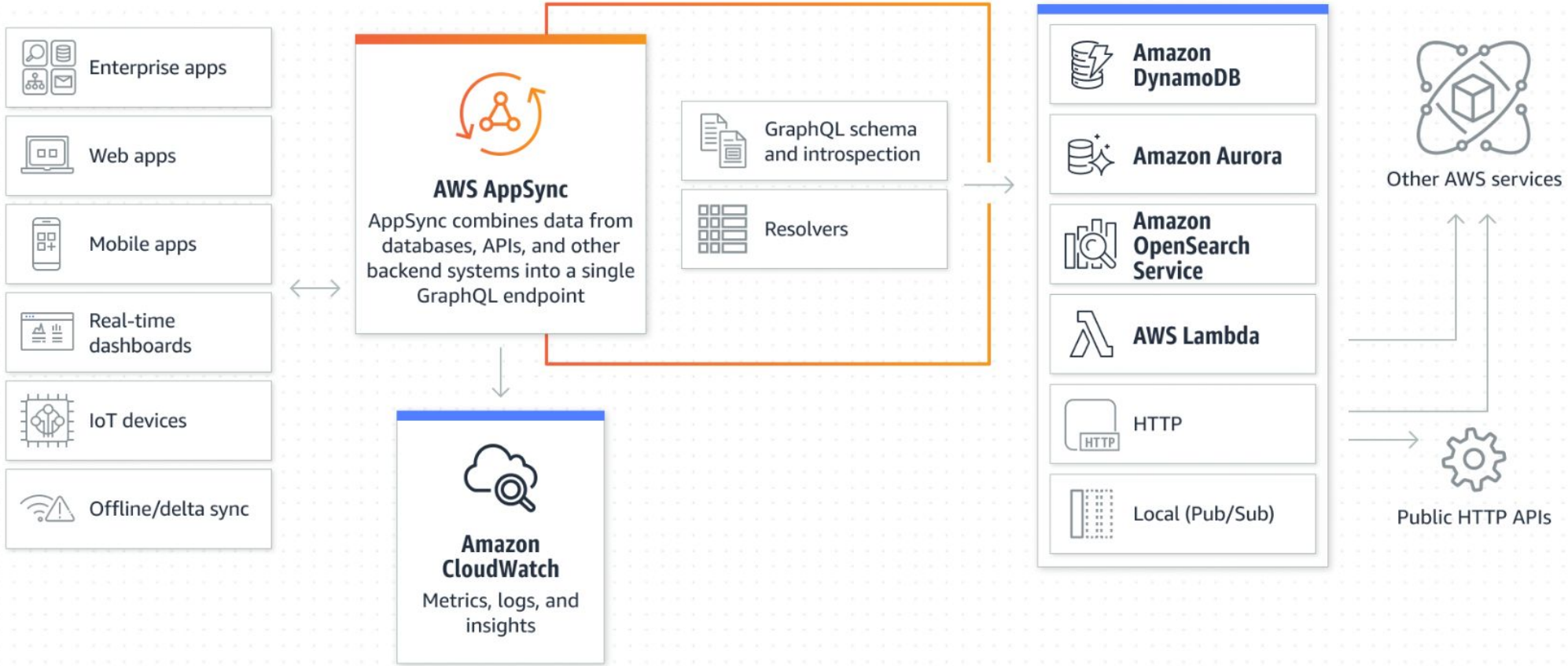
- AWS AppSync basics
- Building an AWS AppSync solution
- Monitoring and troubleshooting
- Best practices
- Pros and cons
- Takeaways

AWS AppSync basics

What is AWS AppSync?

- Serverless GraphQL and pub/sub via a single endpoint to securely query, update, or publish data
- Benefits of using AWS AppSync
  - Real-time updates
  - Flexible and scalable API
  - Simplified backend integration

AWS AppSync components



https://aws.amazon.com/appsync/

What is GraphQL?

- A query language for APIs
- Gives clients the power to ask for exactly what they need
- Successfully used at many companies
- Useful when
  - Saving on bandwidth
  - Retrieving nested data
  - Retrieving data from multiple sources

REST vs. GraphQL

REST API endpoints

- GET /api/books
- GET /api/books/{id}
- POST /api/books
- PUT /api/books/{id}
- DELETE /api/books/{id}
- . . .

REST vs. GraphQL

GraphQL is a single endpoint

```
query {
  books {
    id
    title
    author
    publicationDate
  }
}
```

```
mutation {
  addBook(title: "New Book",
author: "John Doe",
publicationDate: "2023-01-01") {
    id
    title
    author
    publicationDate
  }
}
```

```
mutation {
  deleteBook(id: "123")
}
```

```
query {
  book(id: "123") {
    id
    title
    author
    publicationDate
  }
}
```

```
mutation {
  updateBook(id: "123", title:
"Updated Title") {
    id
    title
    author
    publicationDate
  }
}
```

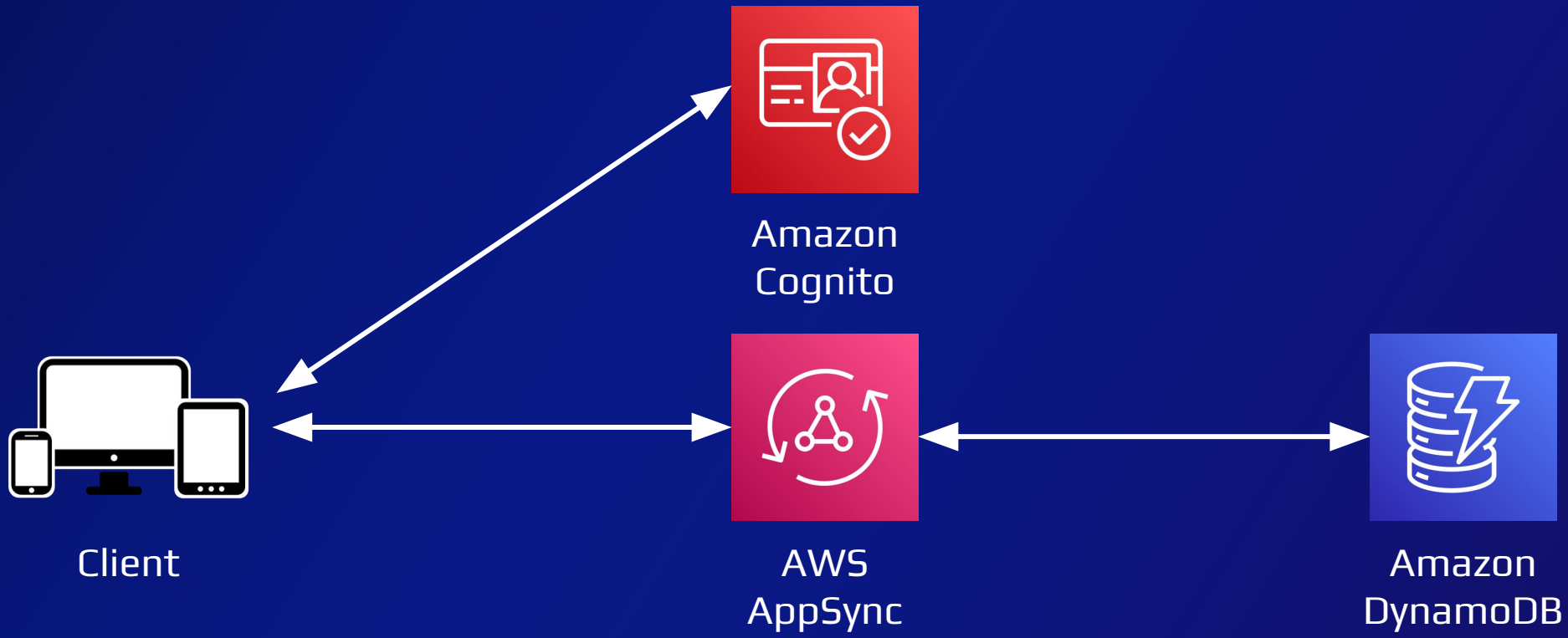
REST vs. GraphQL

Define complex queries that traverse relationships between entities

```
query {
  book(id: "123") {
    id
    title
    author {
        name
        bio
    }
    publicationDate
  }
}
```

What are we building?

Diagram of the application



Monitoring and troubleshooting

Monitoring

- Amazon CloudWatch
- AWS X-Ray
- Error handling and logging
- Testing and debugging tools

Common issues

- Schema errors
- Resolver misconfigurations
- Authorization and access control
- Performance bottlenecks
- Real-time updates
- Integration with frontend/client
- Data caching
- Cost optimization

Best practices

Best practices

- Keep the schema modular and maintainable
- Implement authentication and authorization mechanisms
- Implement data caching strategies
- Error handling and logging
- Consider the client when implementing
- Don’t skimp on testing
- Continuous improvement
- Documentation and collaboration

Pros and cons

Pros and cons

Pros

- Simplified backend integration
- Real-time updates with subscriptions
- Scalability and performance
- Flexibility and customizability
- Built-in security and access control

Cons

- Learning curve
- Vendor lock-in
- Cost considerations
- Limited built-in data sources
- Complexity of VTL

Takeaways

Takeaways

- Understanding the core components of AWS AppSync is crucial for effective application development
- GraphQL operations offer efficient data retrieval, data manipulation, and real-time updates
- Security considerations, performance optimization, and best practices play vital roles in developing robust and secure applications
- Regular testing, debugging, and monitoring are essential for ensuring reliability and performance

Thank you!

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