Why not Relay?

A GraphQL and React story

require('lx') 20.02.2020

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Software Engineer
(lots of Front-End)

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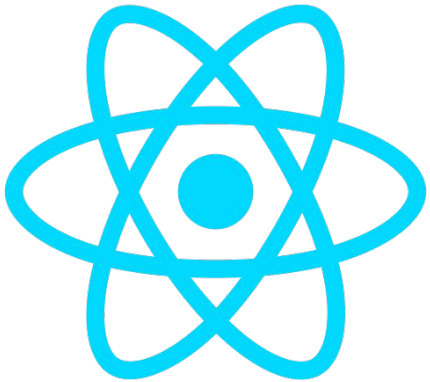
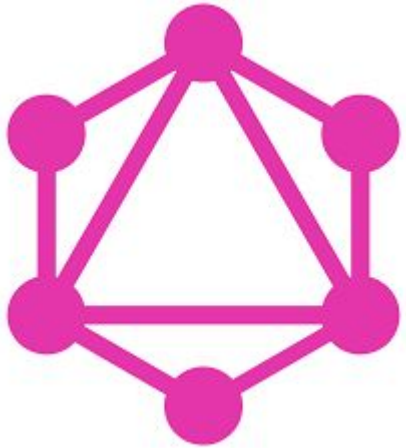
Who developed these two technologies you really love?





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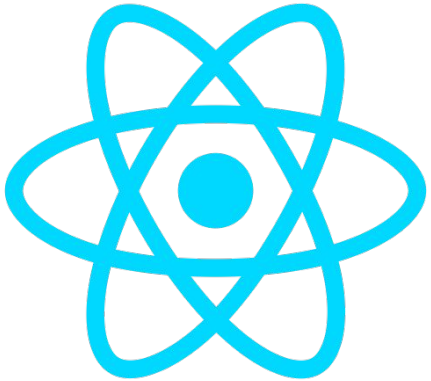
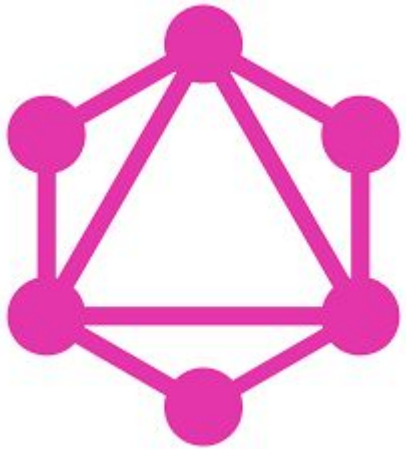
Relay?





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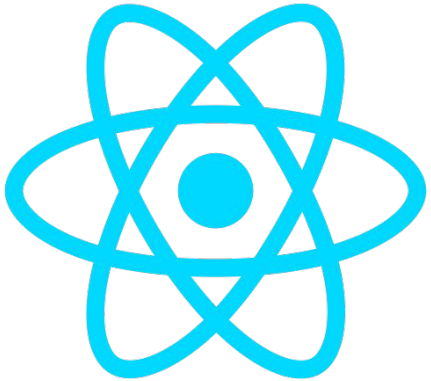
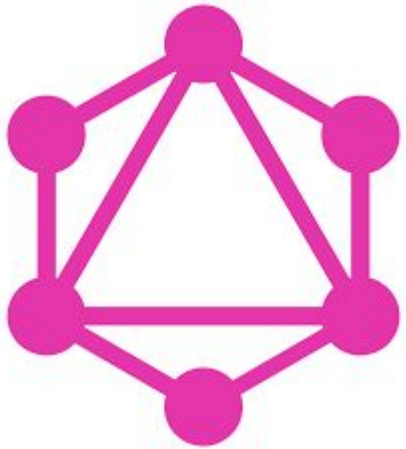
Apollo!





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Is there any Apollo’s feature that Relay is missing?

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Fetching data

Apollo

```
function Dogs({ breed }) {
  const { loading, error, data } = useQuery(GET_DOGS, {
    variables: { breed },
  });

  if (loading) return 'Loading...';
  if (error) return `Error! ${error}`;

  // Use data.dogs
  ...
}
```

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Fetching data

Relay

```
function renderQuery({error, props}){
  if (error) {
    return `Error! ${error.message}`;
  } else if (props) {
    // Use data.dogs
    ...
  }
  return 'Loading...';
}

function Dogs({ breed }) {
  return (
    <QueryRenderer
      environment={environment}
      query={GET_DOGS}
      variables={{ breed }}
      render={renderQuery}
    />
  );
}
```

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Updating data

Apollo

```
function AddDog() {
  const [addDog, { data, loading, error }] = useMutation(ADD_DOG);
  ...
  addDog({ variables: { breed: 1, ... }});
}
```

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Updating data

Relay

```
function addDog(environment, variables){
  commitMutation(
    environment,
    {
      ADD_DOG,
      variables,
      onCompleted: (response, errors) => {
        console.log('Response received from server.')
      },
      onError: err => console.error(err),
    },
  );
}

// React Component
function AddDog(environment) {
  ...
  addDog(environment, { breed: 1, ... });
}
```

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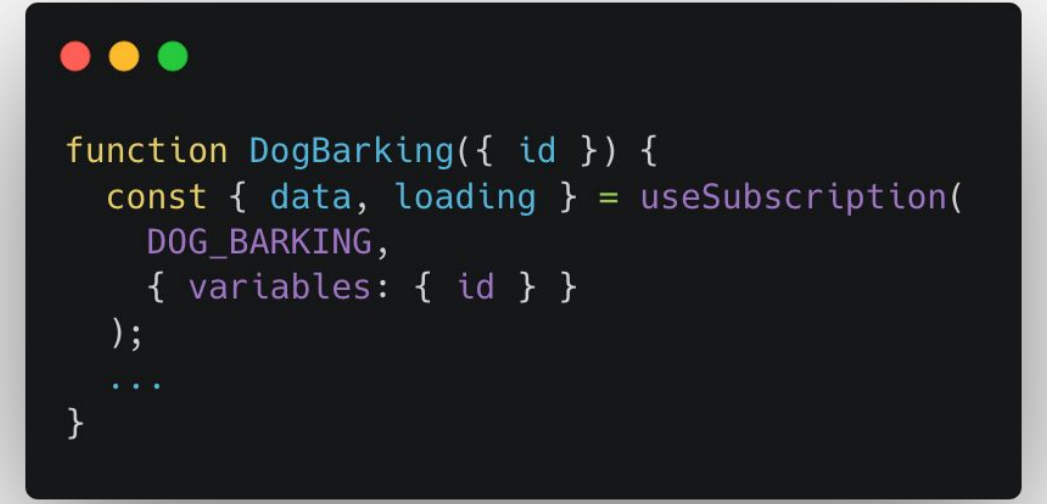
Subscriptions

Apollo



```
function DogBarking({ id }) {
  const { data, loading } = useSubscription(
    DOG_BARKING,
    { variables: { id } }
  );
  ...
}
```

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Subscriptions

Relay

```
function requestDogBarkingSubscription(environment, { id }){
  return requestSubscription(
    environment,
    {
      DOG_BARKING,
      { id },
      updater: store => { /* UPDATE THE QUERY CACHE */ }
      onCompleted: () => {/* server closed the subscription */},
      onError: error => console.error(error),
    }
  );
}
```

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Others

Apollo & Relay

- Caching
- Optimistic update
- Local data
- Pagination

- Yes, Relay's API looks cluttered and verbose.
- Apollo is easier to integrate in the component lifecycle, thanks to hooks.
- Apollo has better docs.
- Apollo is just a library, while Relay has two packages, relay-compiler and relay-runtime.

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Is there any Apollo's feature that Relay is missing?

NO

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No seriously, why Relay?

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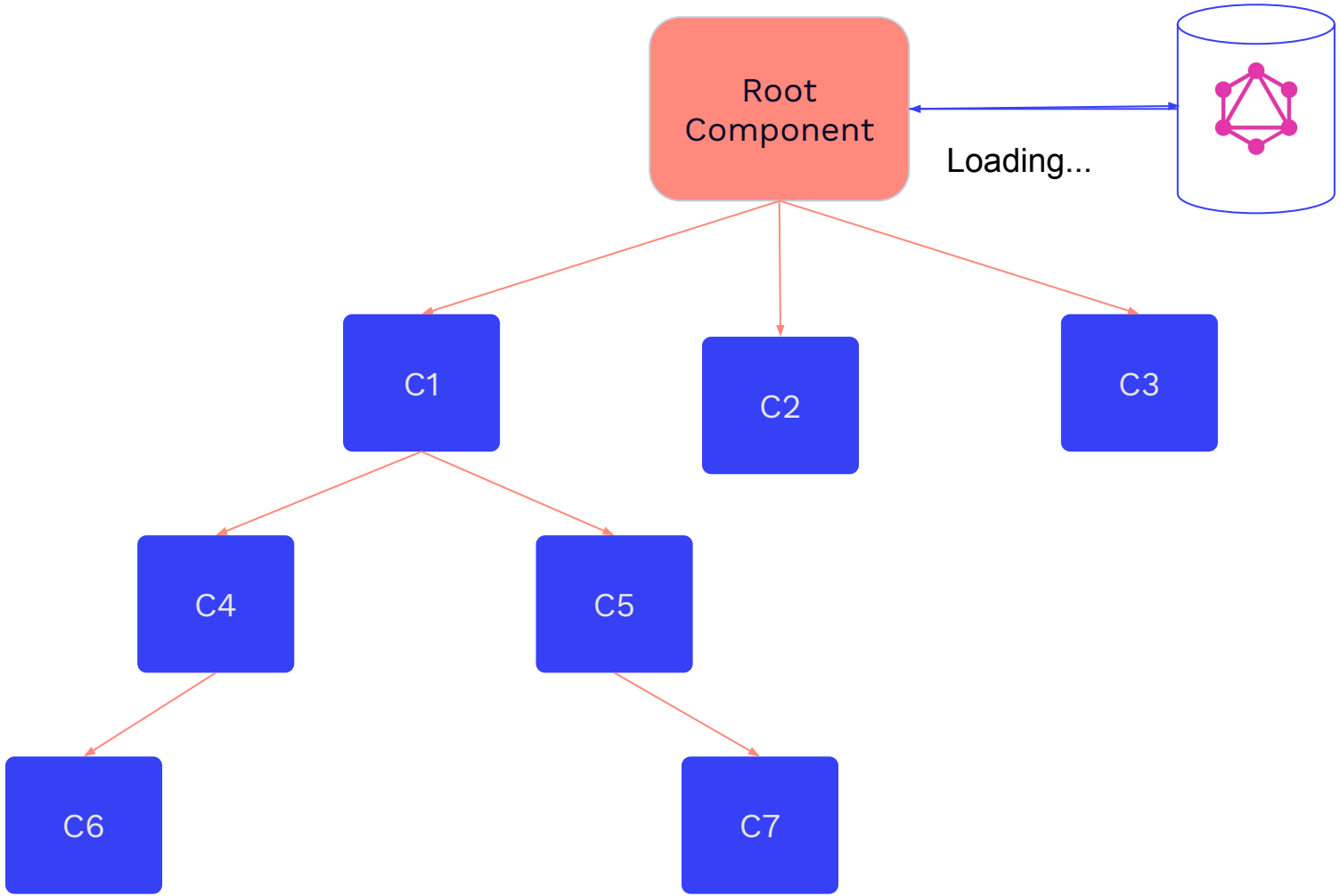
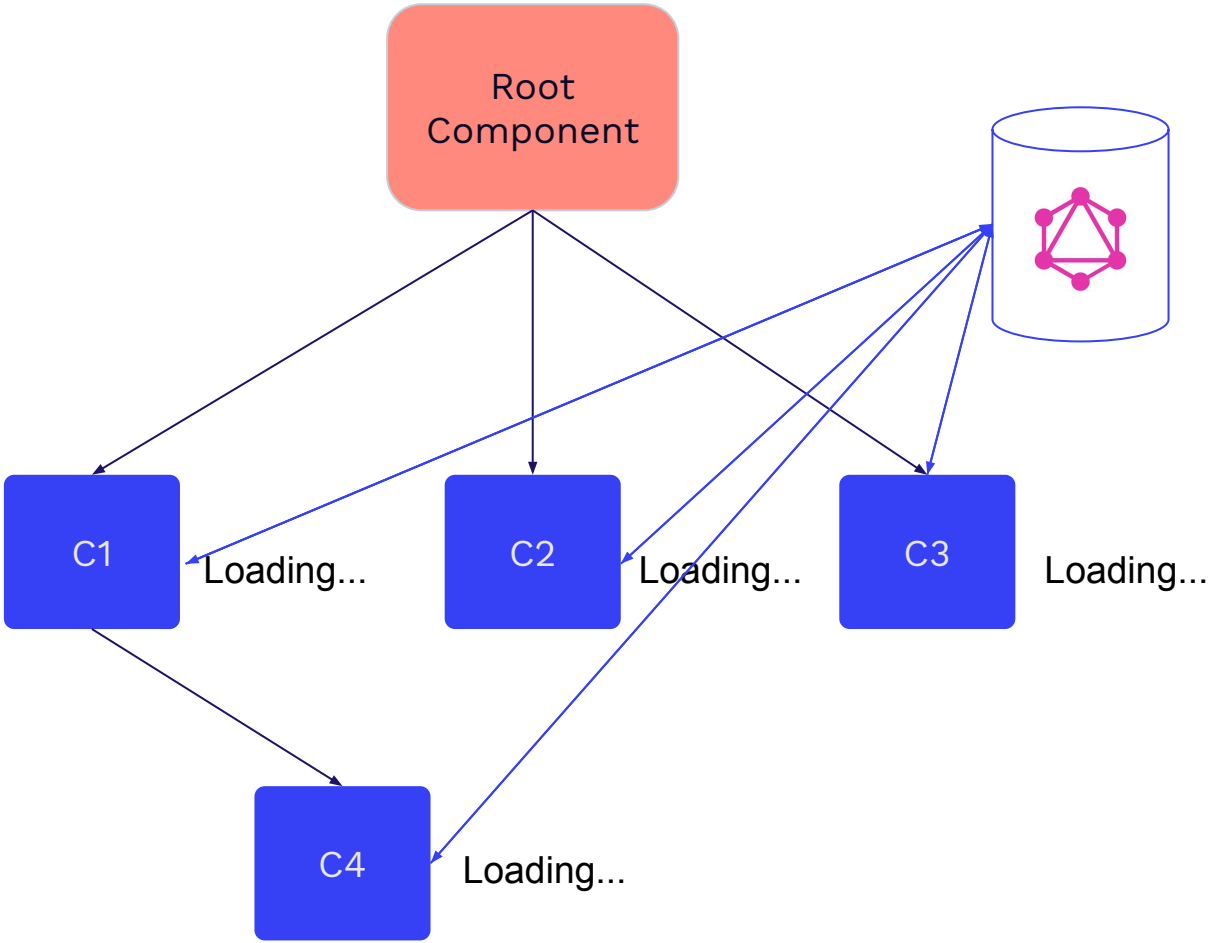
Thinking in Realy

1. Fetching Data For a View
2. Data Components aka Containers
3. Render
4. Data Masking


Root Component
Loading...
C1
C2
C3
C4
C5
C6
C7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Loading...
C4
Loading...

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Thinking in Realy

1. Fetching Data For a View
2. Data Components aka Containers
3. Render
4. Data Masking

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More than a library

1. relay-compiler
2. relay-runtime

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Why and when Relay

Finally

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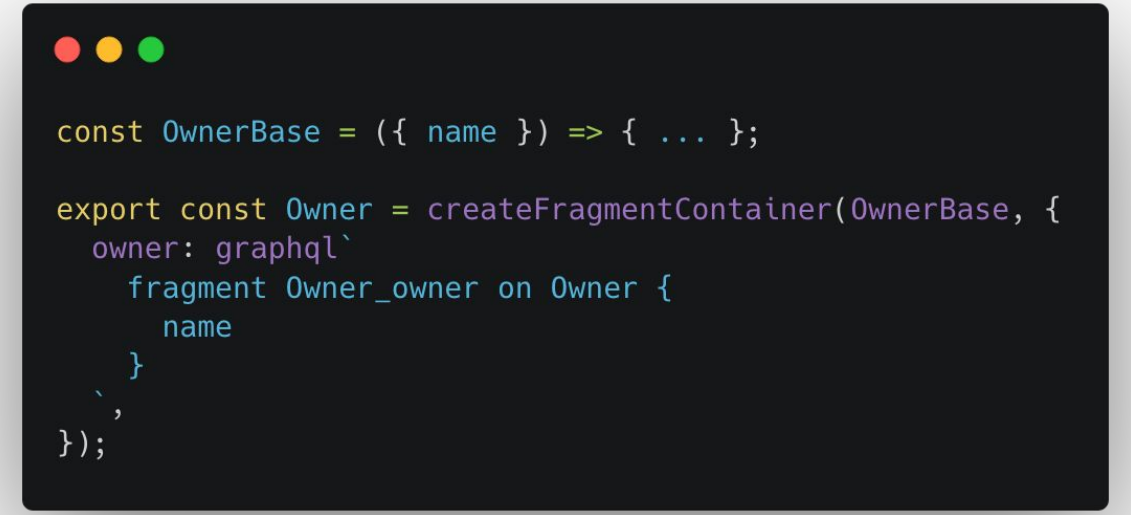
Colocation = Fragments

It’s all about fragments



```
const OwnerBase = ({ name }) => { ... };

export const Owner = createFragmentContainer(OwnerBase, {
  owner: graphql`
    fragment Owner_owner on Owner {
      name
    }
  `,
});
```

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Include the fragment into a Query

It's all about fragments

```
const renderQuery = ({ error, props }) => {
  if (error) {
    return <div>{error.message}</div>;
  } else if (props) {
    return <Owner owner={props.dog.owner} />;
  }
  return <div>Loading</div>;
};

export const Dog = ({ key }) => {
  return (
    <QueryRenderer
      environment={environment}
      query={graphql`
        query DogQuery($key: ID!) {
          dog(key: $key) {
            key
            owner {
              ...Owner_owner
            }
          }
        }
      `}
      variables={{ key }}
      render={renderQuery}
    />
  );
};
```

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Run compiler

```
yarn run v1.9.4
$ relay-compiler --src ./src --schema ./schema.graphql --extensions js jsx

Writing js
ERROR:
Unknown fragment 'Likes_dog'.
error Command failed with exit code 100.
```

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Fragments composition

It’s all about fragments part 2

```
const OwnerBase = ({ name }) => { ... };

export const Owner = createFragmentContainer(OwnerBase, {
  owner: graphql`
    fragment Owner_owner on Owner {
      name
    }
  `,
});
```

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Fragments composition

It’s all about fragments part 2

```
const OwnerAddressBase = ({ address }) => { ... };

export const OwnerAddress = createFragmentContainer(OwnerAddressBase, {
  address: graphql`
    fragment OwnerAddress_address on Address {
      street
      zip
      number
      city
    }
  `,
});
```

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Fragments composition

It's all about fragments part 2

```
const OwnerBase = ({ name, addressList }) => {
  ...
  return addressList.map(address => (
    <OwnerAddress address={address}></OwnerAddress>
  ));
};

export const Owner = createFragmentContainer(OwnerBase, {
  owner: graphql`
    fragment Owner_owner on Owner {
      name
      addressList {
        ...OwnerAddress_address
      }
    }
  `
});
```

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Type Emission

Typing is goooooood!

relay-compiler generates types based on your fragments and query.
By default it uses **Flow** but you can use **Typescript**.

It generates file alongside your **Fragment Container** components within the folder **__generated__**

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Type Emission

Typing is goooooood!

```
/**
 * export type OwnerAddress_address = {
 *   readonly street: string
 *   readonly zip: string
 *   readonly number: string
 *   readonly city: string
 * }
 */
import { OwnerAddress_address } from "__generated__/OwnerAddress_address.graphql"

const OwnerAddressBase = ({ address } : { address: OwnerAddress_address }) => { ... };

export const OwnerAddress = createFragmentContainer(OwnerAddressBase, {
  address: graphql`
    fragment OwnerAddress_address on Address {
      street
      zip
      number
      city
    }
  `,
});
```

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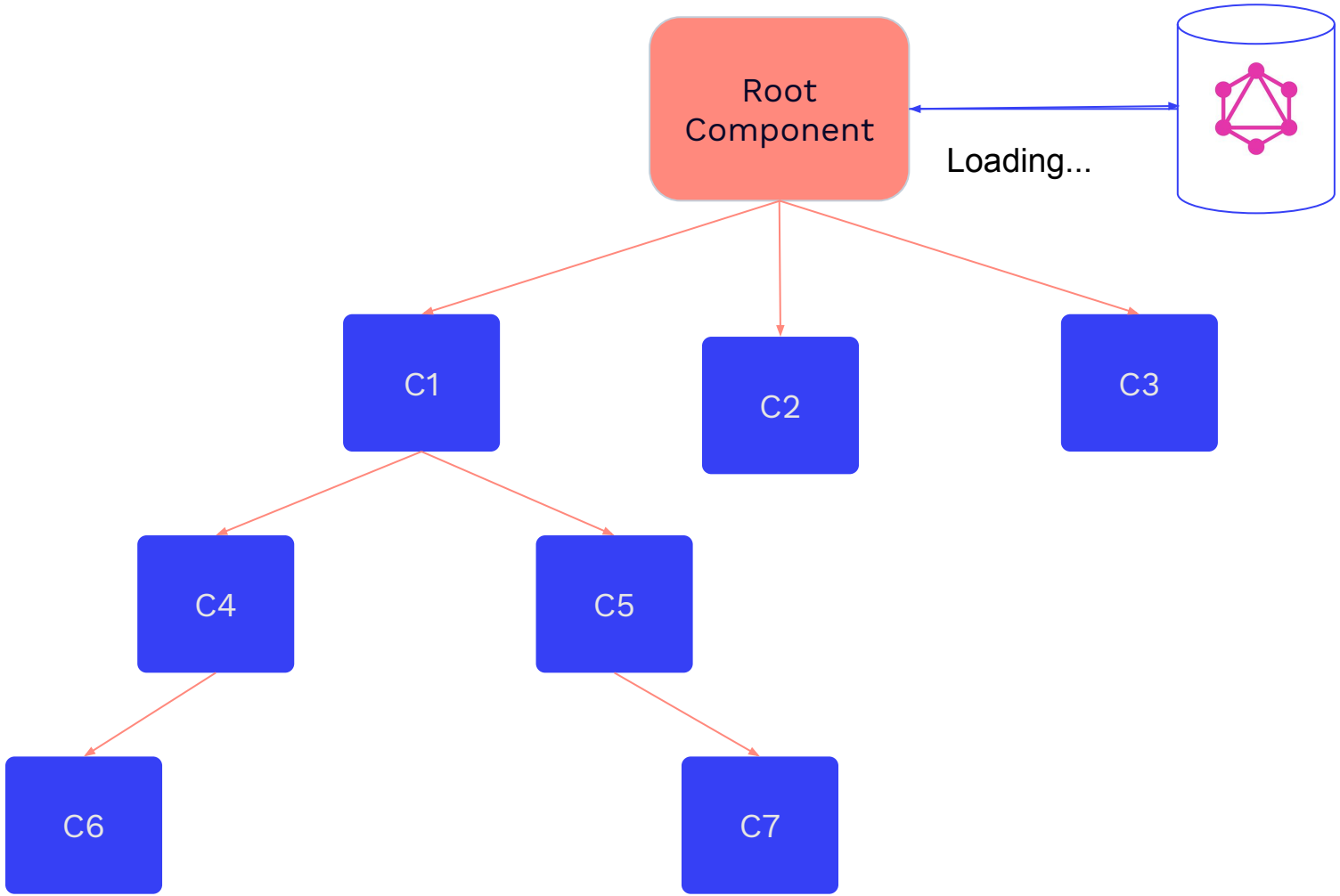
Summary

1. Data colocation decouples from the root component running the query and avoids implicit dependencies.
2. Types help you to develop fast and safe
3. Relay-compiler optimise the query and enforce all the frameworks rules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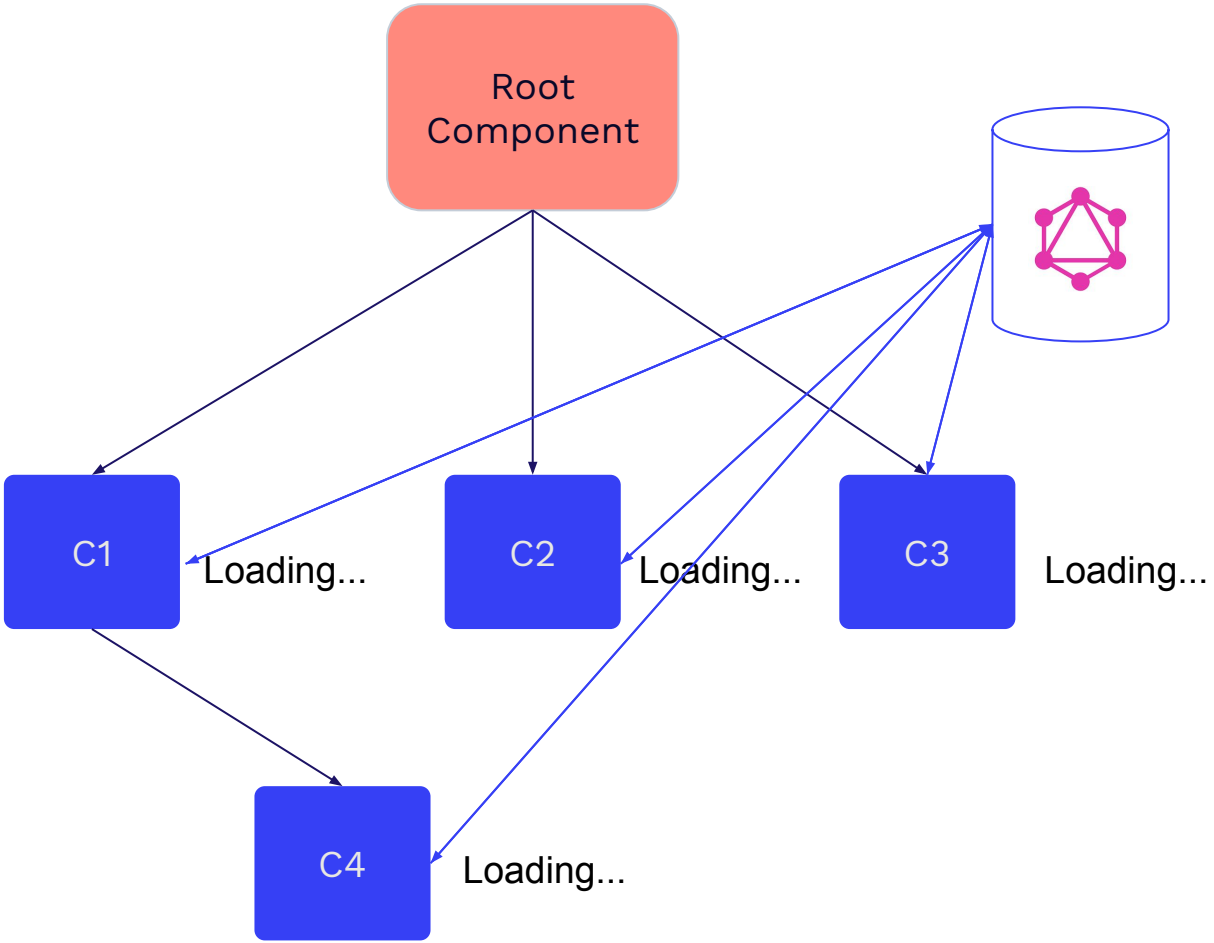
Root Component
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C3
Loading...
C4
Loading...

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Relay seems really powerful for **large applications**

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Future of Relay

https://relay.dev/docs/en/experimental/step-by-step

Hooks

- RelayEnvironmentProvider
- useRelayEnvironment
- **usePreloadedQuery**
- useLazyLoadQuery
- useFragment
- useRefetchableFragment
- usePaginationFragment
- useBlockingPaginationFragment

Suspense

Loading state will be fully managed with **React Suspense**. Synchronise multiple loading states of the app will be super easy.

Thanks for listening!

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