Introduction à Django REST Framework

Xavier Dutreilh

Rencontres Django 2015

Qu'est-ce que REST ?

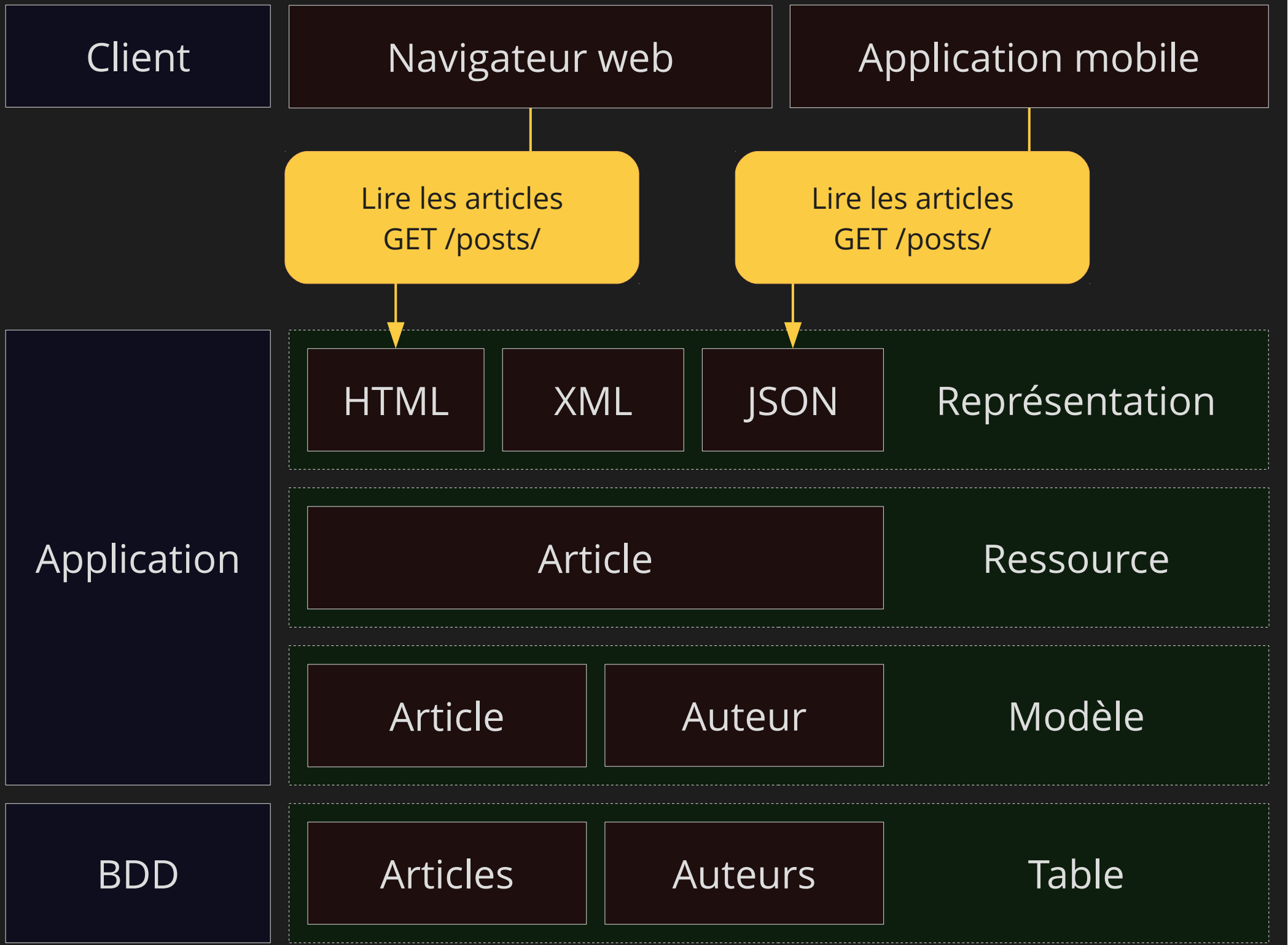
acronyme de
REpresentational
State **T**ransfer

style d'architecture pour les systèmes hypermédia distribués

invention de
Roy Fielding
dans sa thèse
de doctorat

application à
de nombreux
domaines,
dont le web

Comment peut-on appliquer REST à un blog ?


Client
Navigateur web
Application mobile
Lire les articles
GET /posts/
Lire les articles
GET /posts/
Application
HTML
XML
JSON
Représentation
Article
Ressource
Article
Auteur
Modèle
BDD
Articles
Auteurs
Table

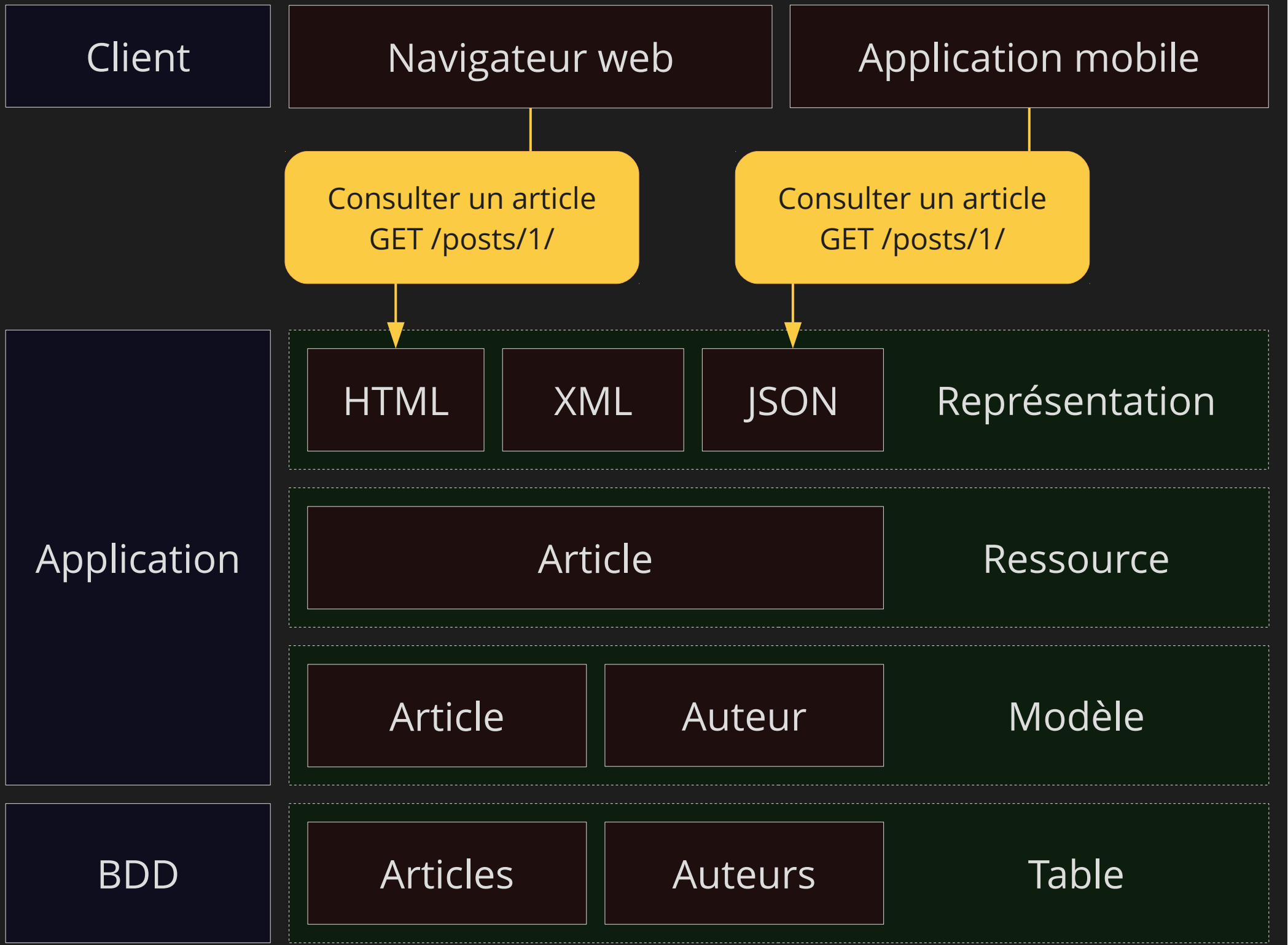

Client
Navigateur web
Application mobile
Consulter un article
GET /posts/1/
Consulter un article
GET /posts/1/
Application
HTML
XML
JSON
Représentation
Article
Ressource
Article
Auteur
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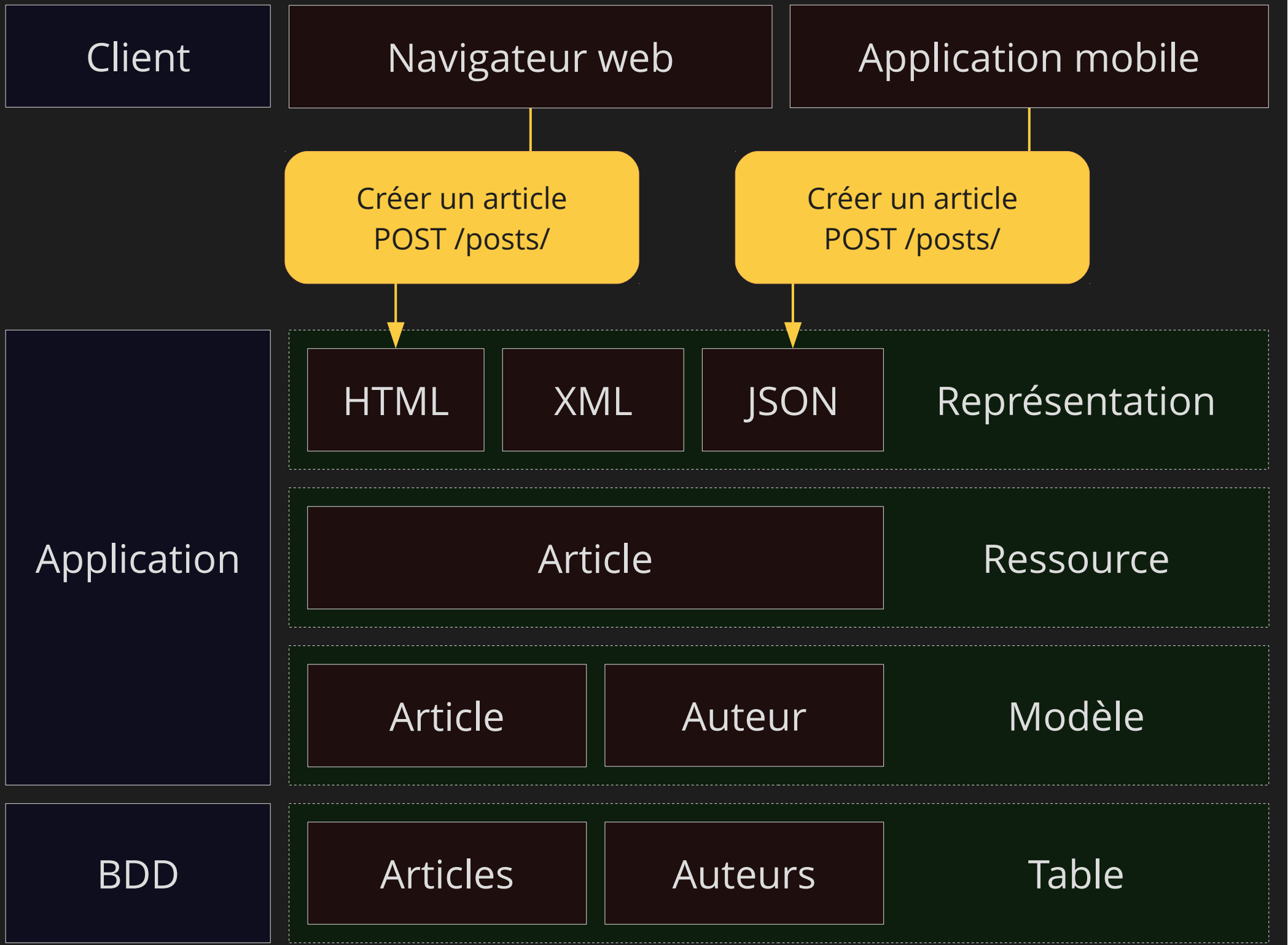
Table


Client
Navigateur web
Application mobile
Créer un article
POST /posts/
Créer un article
POST /posts/
Application
HTML
XML
JSON
Représentation
Article
Ressource
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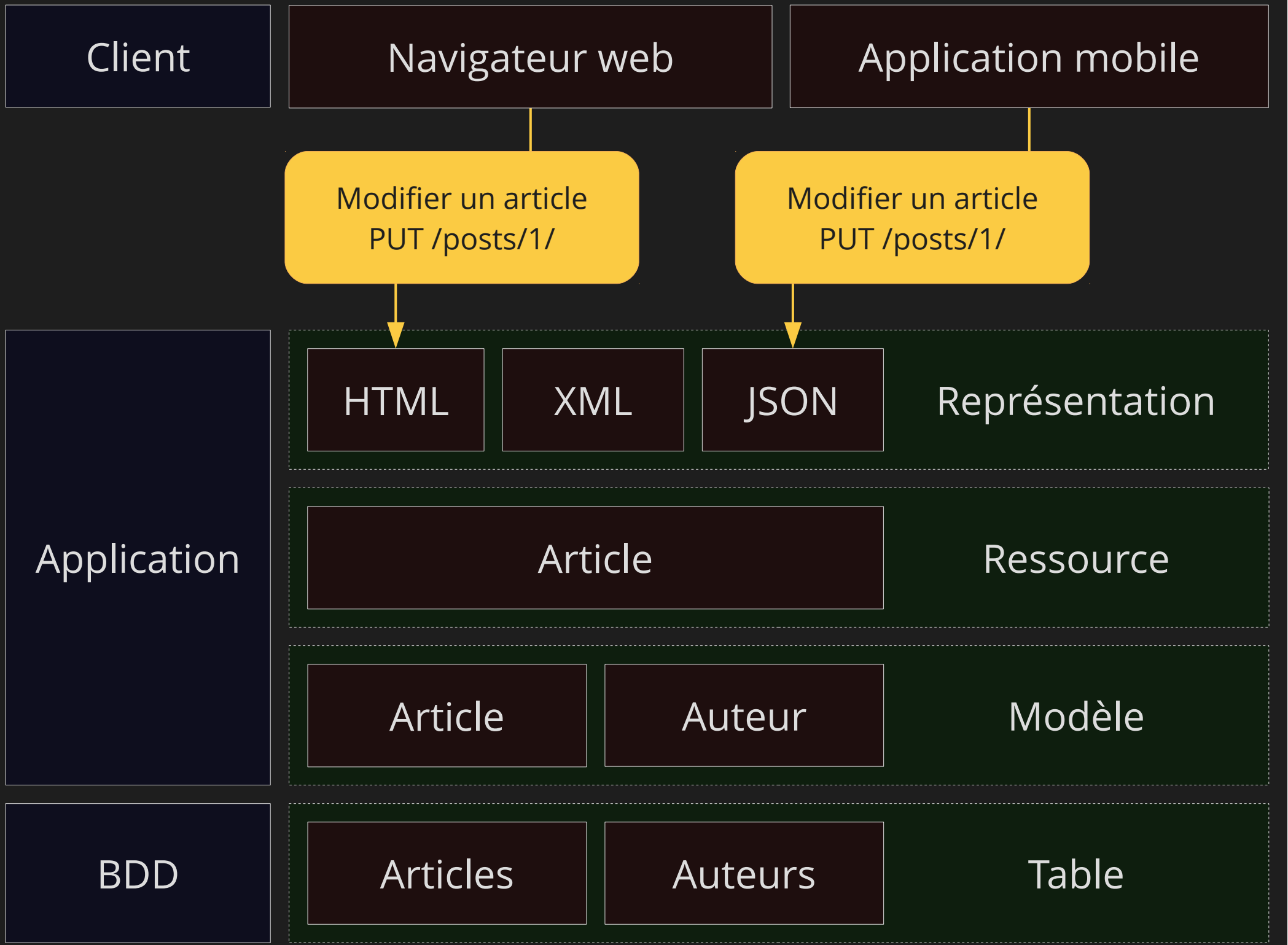
Client
Navigateur web
Application mobile
Modifier un article
PUT /posts/1/
Modifier un article
PUT /posts/1/
Application
HTML
XML
JSON
Représentation
Article
Ressource
Article
Auteur
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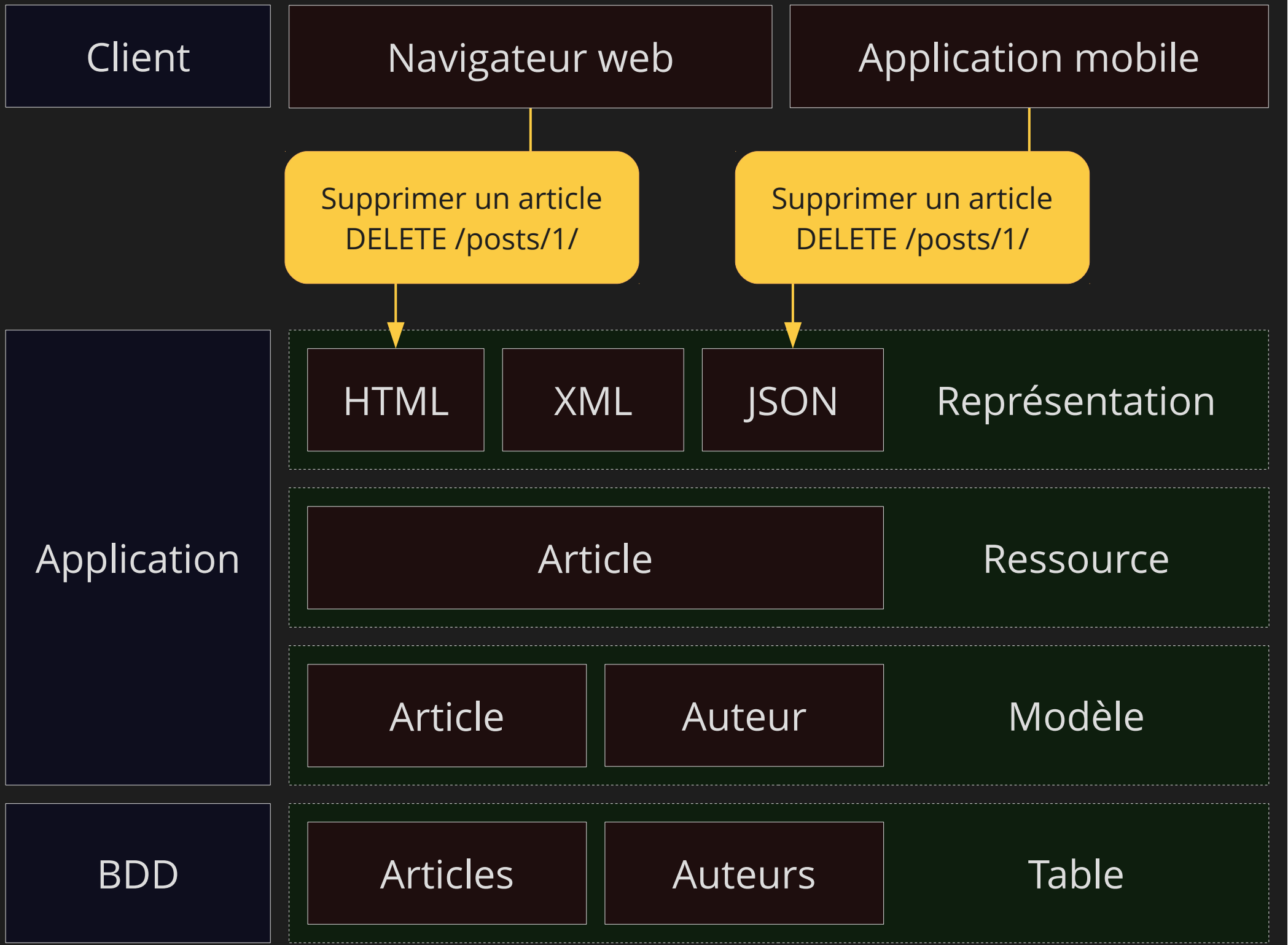
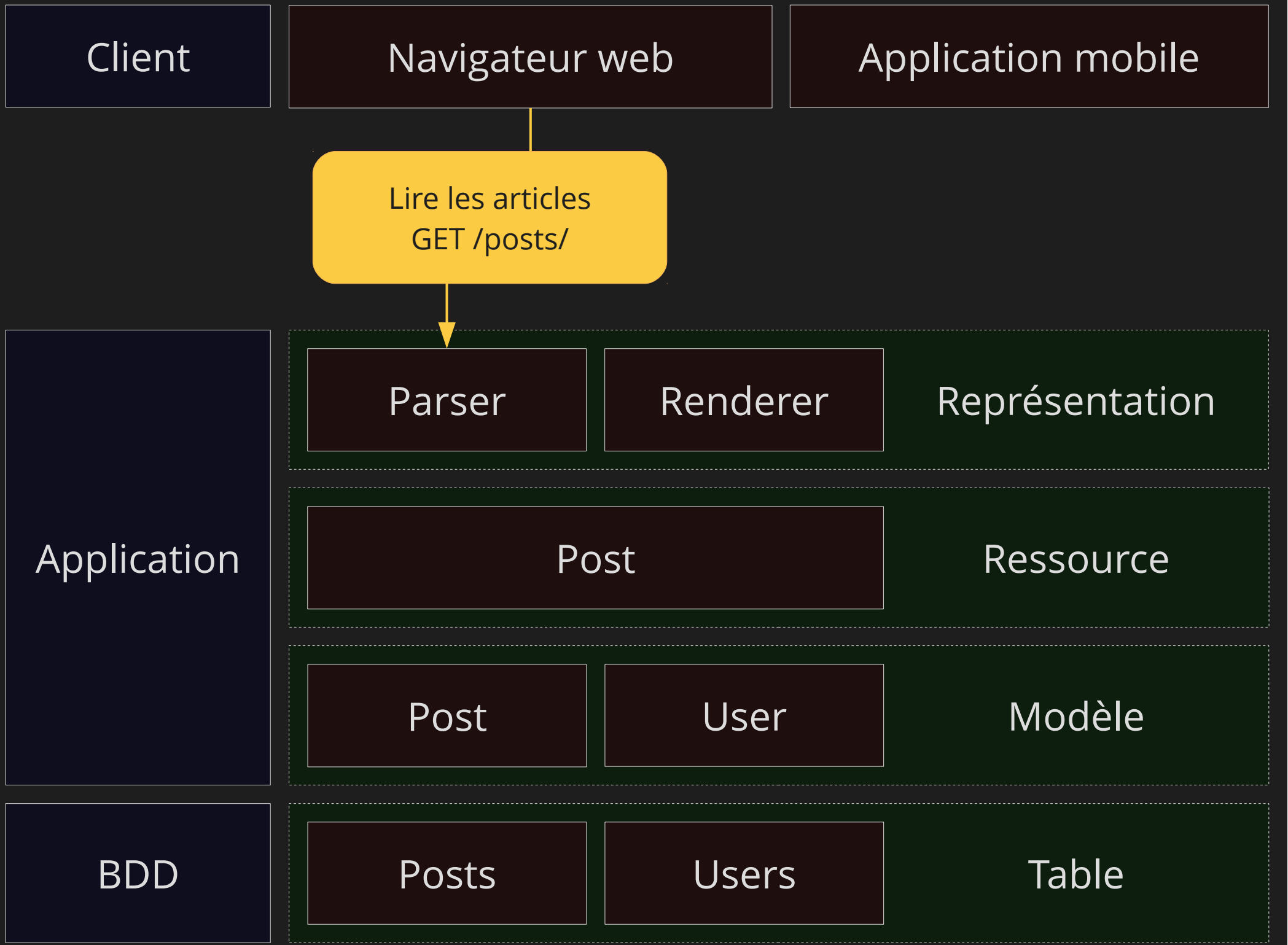

Client
Navigateur web
Application mobile
Supprimer un article
DELETE /posts/1/
Supprimer un article
DELETE /posts/1/
Application
HTML
XML
JSON
Représentation
Article
Ressource
Article
Auteur
Modèle
BDD
Articles
Auteurs
Table

Qu'est-ce que Django REST Framework ?

boîte à outils
de création
d'architecture
REST avec Django

Comment peut-on construire un blog avec Django REST Framework ?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Posts
Users
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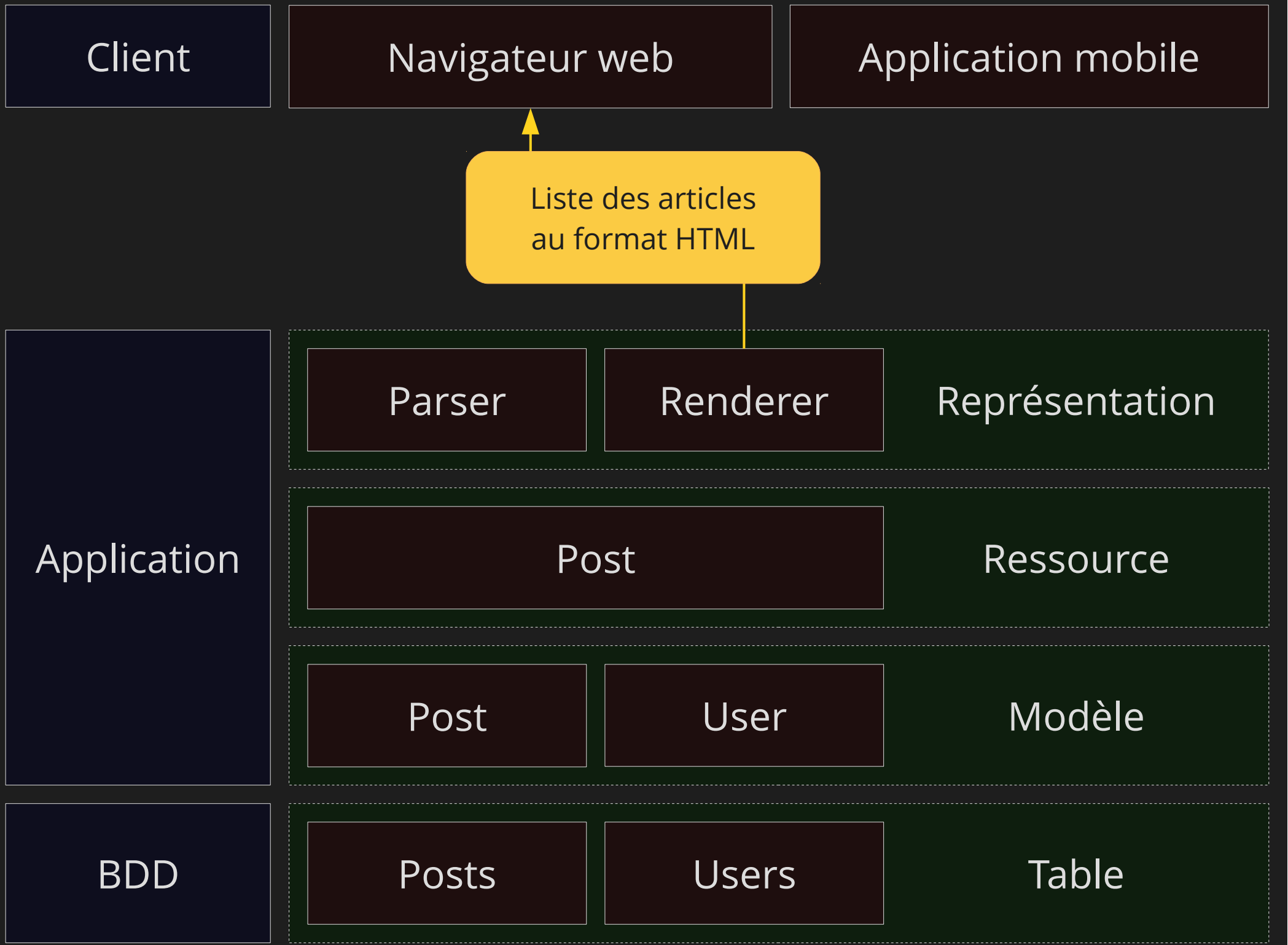
Client
Navigateur web
Application mobile
Liste des articles
au format HTML
Application
Parser
Renderer
Représentation
Post
Ressource
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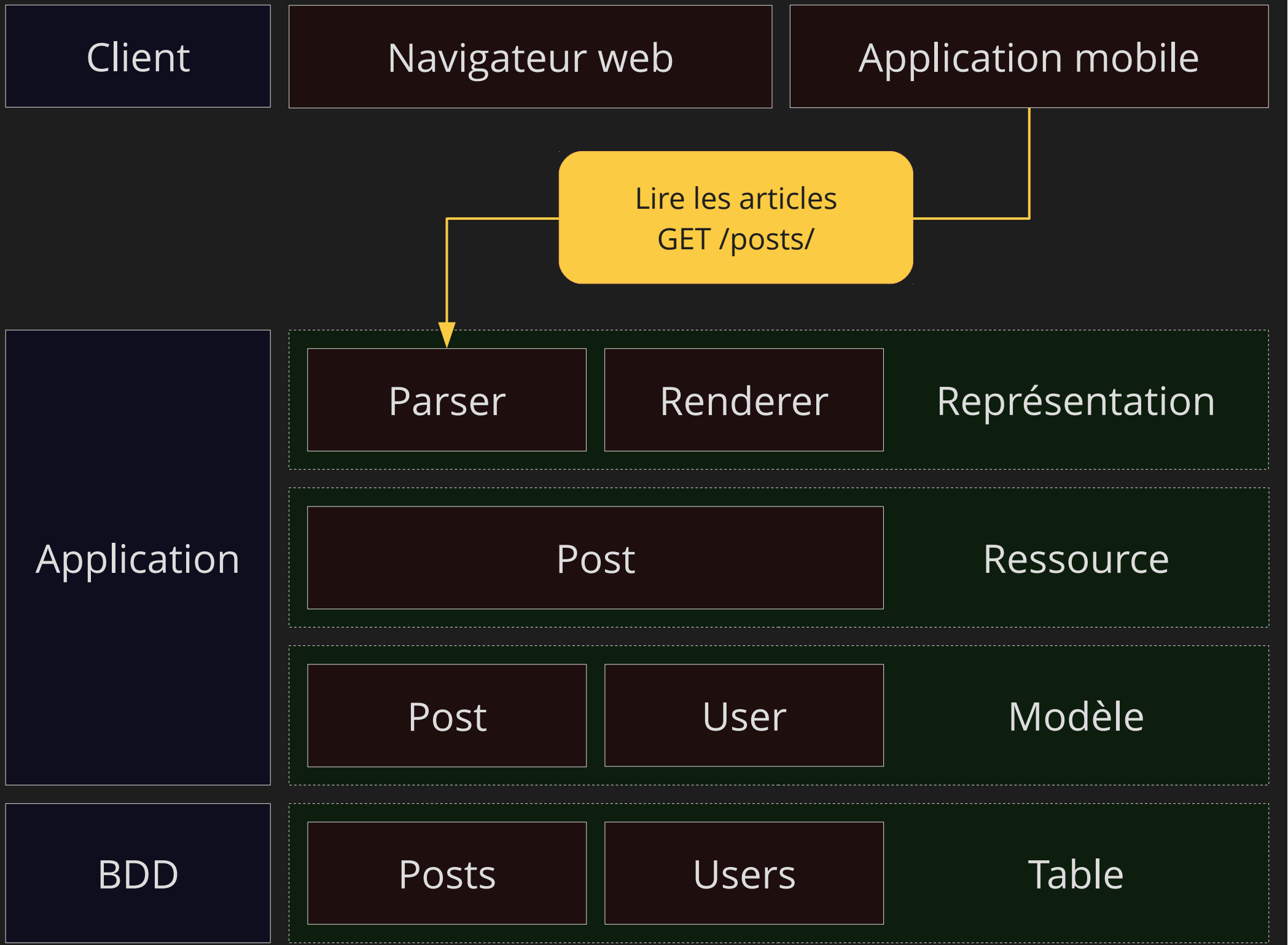
Table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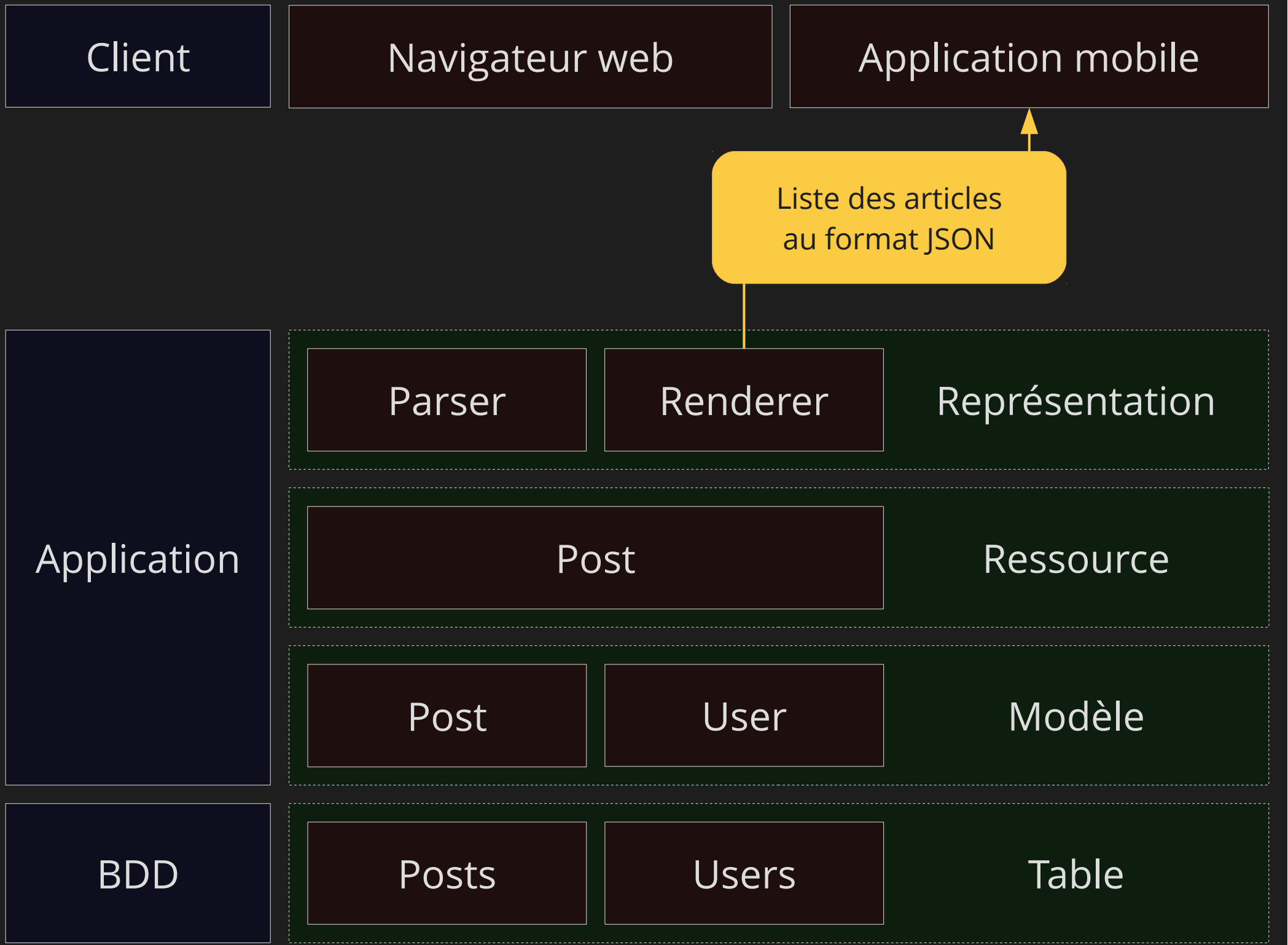
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```python
class PostViewSet(ModelViewSet):

    queryset = Post.objects.all()
    filter_backends = (DjangoFilterBackend, OrderingFilter)
    filter_class = PostFilter
    ordering_fields = ('title', 'date_created', 'date_updated')
    ordering = ('-date_updated',)
    pagination_class = PostPagination
    permission_classes = (IsAuthorOrReadOnly,)
    serializer_class = PostSerializer

    def perform_create(self, serializer):
        serializer.save(author=self.request.user)
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    serializer_class = PostSerializer

    def perform_create(self, serializer):
        serializer.save(author=self.request.user)
```

```
class Post(Model):

    title = CharField(max_length=100)
    author = ForeignKey(User)
    content = TextField()
    date_created = DateTimeField(auto_now_add=True)
    date_updated = DateTimeField(auto_now=True)

    def __str__(self):
      return self.title
```

Activation du filtrage et du tri de la vue

```
class PostViewSet(ModelViewSet):

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```

Configuration des critères de filtrage de la vue

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    queryset = Post.objects.all()
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    filter_class = PostFilter
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    ordering = ('-date_updated',)
    pagination_class = PostPagination
    permission_classes = (IsAuthorOrReadOnly,)
    serializer_class = PostSerializer

    def perform_create(self, serializer):
        serializer.save(author=self.request.user)
```

Définition des critères de filtrage de la vue

```
class PostFilter(FilterSet):

    title = CharFilter(lookup_type='icontains')
    content = CharFilter(lookup_type='icontains')

    class Meta:

        model = Post
        fields = ('title', 'content')
```

Définition des critères de tri de la vue

```
class PostViewSet(ModelViewSet):

    queryset = Post.objects.all()
    filter_backends = (DjangoFilterBackend, OrderingFilter)
    filter_class = PostFilter
    ordering_fields = ('title', 'date_created', 'date_updated')
    ordering = ('-date_updated',)
    pagination_class = PostPagination
    permission_classes = (IsAuthorOrReadOnly,)
    serializer_class = PostSerializer

    def perform_create(self, serializer):
        serializer.save(author=self.request.user)
```

Définition des critères de tri par défaut de la vue

```
class PostViewSet(ModelViewSet):

    queryset = Post.objects.all()
    filter_backends = (DjangoFilterBackend, OrderingFilter)
    filter_class = PostFilter
    ordering_fields = ('title', 'date_created', 'date_updated')
    ordering = ('-date_updated',)
    pagination_class = PostPagination
    permission_classes = (IsAuthorOrReadOnly,)
    serializer_class = PostSerializer

    def perform_create(self, serializer):
        serializer.save(author=self.request.user)
```

Configuration de la pagination de la vue

```
class PostViewSet(ModelViewSet):

    queryset = Post.objects.all()
    filter_backends = (DjangoFilterBackend, OrderingFilter)
    filter_class = PostFilter
    ordering_fields = ('title', 'date_created', 'date_updated')
    ordering = ('-date_updated',)
    pagination_class = PostPagination
    permission_classes = (IsAuthorOrReadOnly,)
    serializer_class = PostSerializer

    def perform_create(self, serializer):
        serializer.save(author=self.request.user)
```

Définition de la pagination de la vue

```
class PostPagination(PageNumberPagination):

    page_size = 10
```

Configuration des permissions de la vue

```
class PostViewSet(ModelViewSet):

    queryset = Post.objects.all()
    filter_backends = (DjangoFilterBackend, OrderingFilter)
    filter_class = PostFilter
    ordering_fields = ('title', 'date_created', 'date_updated')
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    pagination_class = PostPagination
    permission_classes = (IsAuthorOrReadOnly,)
    serializer_class = PostSerializer

    def perform_create(self, serializer):
        serializer.save(author=self.request.user)
```

Définition des permissions de la vue

```
class IsAuthorOrReadOnly(IsAuthenticatedOrReadOnly):

    def has_object_permission(self, request, view, obj):
        return (
            request.method in SAFE_METHODS or
            obj.author == request.user
        )
```

Configuration du sérialiseur de la vue

```
class PostViewSet(ModelViewSet):

    queryset = Post.objects.all()
    filter_backends = (DjangoFilterBackend, OrderingFilter)
    filter_class = PostFilter
    ordering_fields = ('title', 'date_created', 'date_updated')
    ordering = ('-date_updated',)
    pagination_class = PostPagination
    permission_classes = (IsAuthorOrReadOnly,)
    serializer_class = PostSerializer

    def perform_create(self, serializer):
        serializer.save(author=self.request.user)
```

Définition du sérialiseur de la vue

```
class PostSerializer(HyperlinkedModelSerializer):

    author = SerializerMethodField()

    class Meta:

        model = Post
        fields = ('url', 'title', 'author', 'content', 'date_created',
            'date_updated')

    def get_author(self, obj) :
      return obj.author.get_full_name()
```

Affectation automatique de l'auteur

```
class PostViewSet(ModelViewSet):

    queryset = Post.objects.all()
    filter_backends = (DjangoFilterBackend, OrderingFilter)
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    ordering_fields = ('title', 'date_created', 'date_updated')
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    pagination_class = PostPagination
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    serializer_class = PostSerializer

    def perform_create(self, serializer):
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```

Où peut-on
voir une démo ?

Django REST framework v 3.1.1 xavier

Api Root / Post List

Post List

OPTIONS GET

```
GET /posts/
```

```
HTTP 200 OK
Vary: Accept
Content-Type: application/json
Allow: GET, POST, HEAD, OPTIONS

{
    "count": 1,
    "next": null,
    "previous": null,
    "results": [
        {
            "url": "http://localhost:8000/posts/1/",
            "title": "Hello, world!",
            "author": "Xavier Dutreilh",
            "content": "Lorem ipsum dolor sit amet, consectetur adipiscing elit. In vulputate ipsum a tincidunt venenatis. Aliquam eu turpis a lorem finibus
            "date_created": "2015-05-04T07:55:51.605879Z",
            "date_updated": "2015-05-04T07:58:52.012621Z"
        }
    ]
}
```

Raw data | HTML form

Title

Content

POST

code source
disponible
sur GitHub

Merci !

Xavier Dutreilh
xavier@dutreilh.com
http://xavier.dutreilh.com/