Prevalence
(avec une pointe de DDD et CQRS)

A propos de nous

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Indépendant

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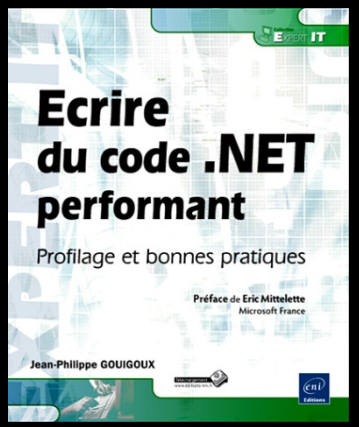
Agile Rennes · Agile Breizh · ALT.NET Rennes

SharePoint & .NET Ouest

JP Gouigoux

Architecte logiciel

- UBS
- AgileTour
- Programmez!



Microsoft CERTIFIED Professional Developer

search://gouigoux

Dotnet France
Technologies Sharepoint, SQL Server & .NET

Plan

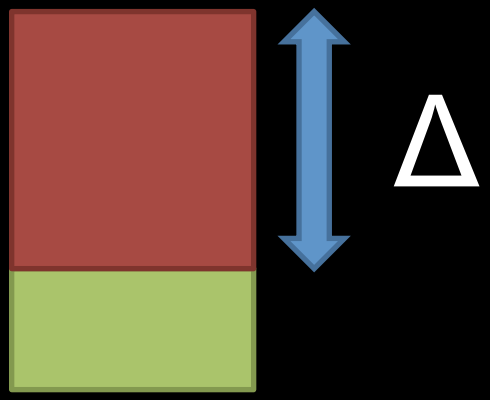
- Principes
  - Approche DDD
  - Tehnologie Prevalence objet
  - Architecture CQRS
- Demo
  - Prevayler (Java) & Bamboo (.Net)
- Questions / Réponses

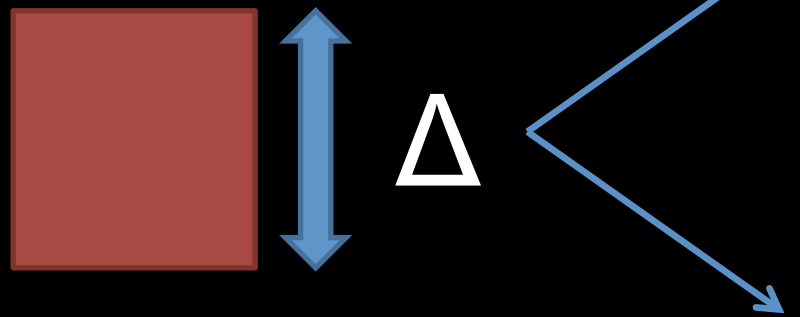
Approche générale

DDD (DOMAIN DRIVEN DESIGN)

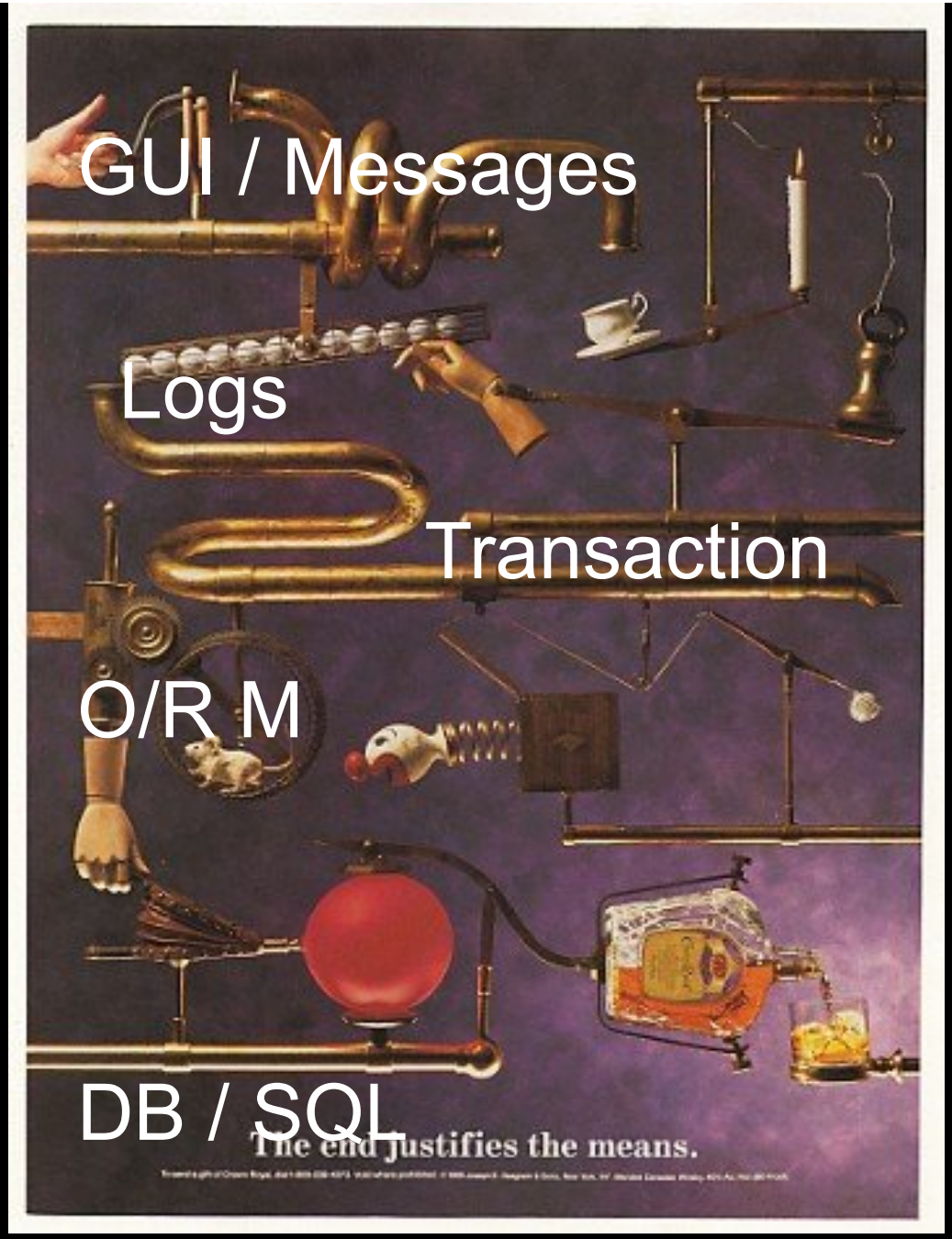
Complexité S d'un système logiciel

- Complexité réelle
- Complexité inhérente
- Delta (complexité accidentelle)
  - incapacité à faire correspondre la solution au problème

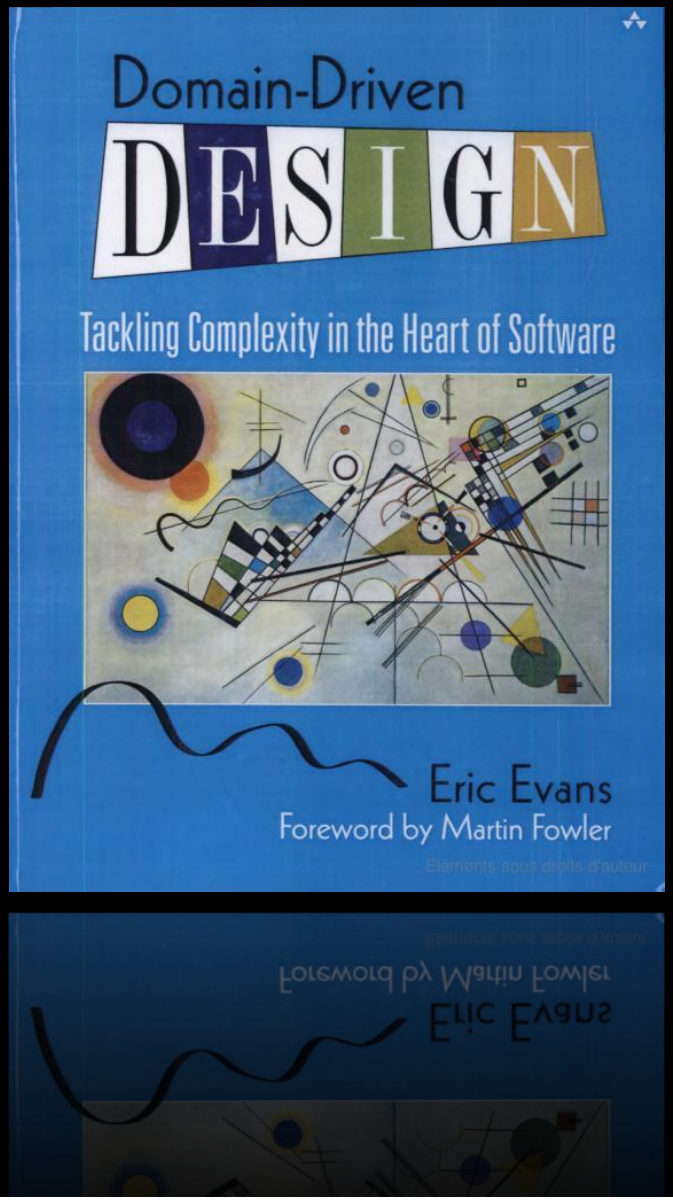




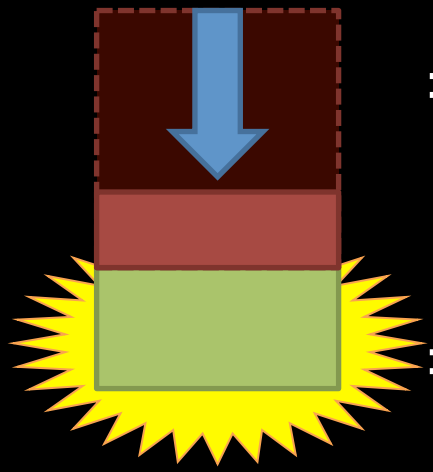
- Bruit technique
- Bruit fonctionnel
  - Apprentissage permanent



1990 Rube Goldberg Machine Crown Royal Whisky Print Ad

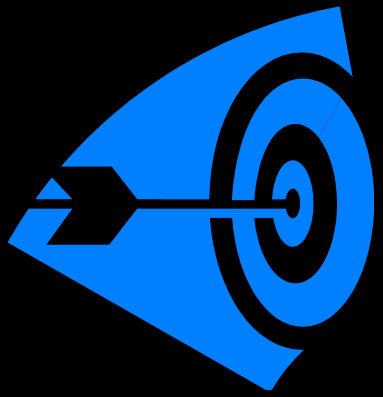

Domain-Driven
DESIGN
Tackling Complexity in the Heart of Software
Eric Evans
Foreword by Martin Fowler
Éléments sous droits d'auteur

DDD : Quels objectifs ?



⇒Réduire

⇒Clarifier

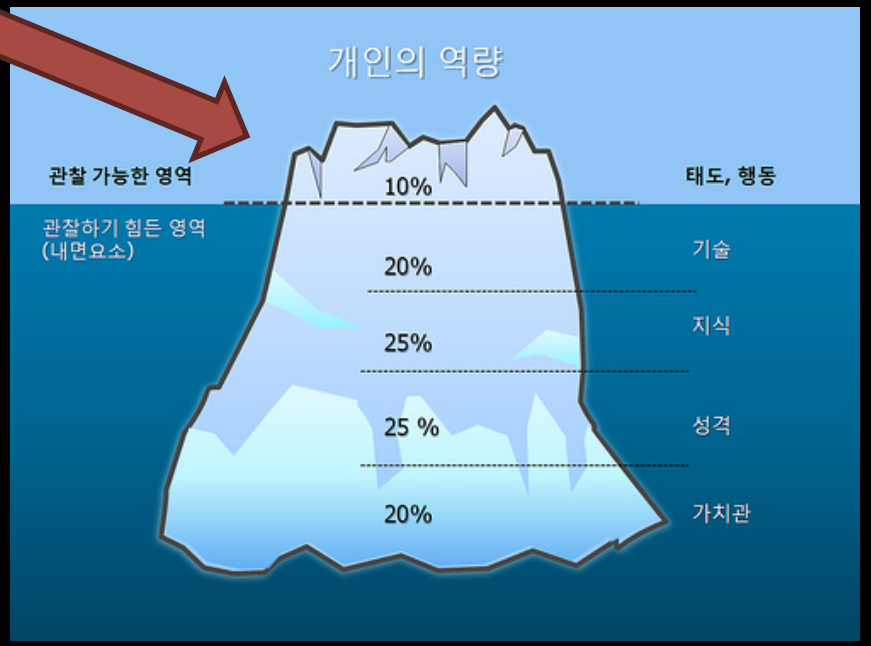


⇒Focaliser

- Avantage concurrentiel

Quels moyens ?

- Aspects techniques



- Communication
- Stratégies d'entreprise
- Techniques de modélisation
- Urbanisation Agile du SI
- Principes et bonnes pratiques
- …

http://www.flickr.com/photos/phploveme/2746295460

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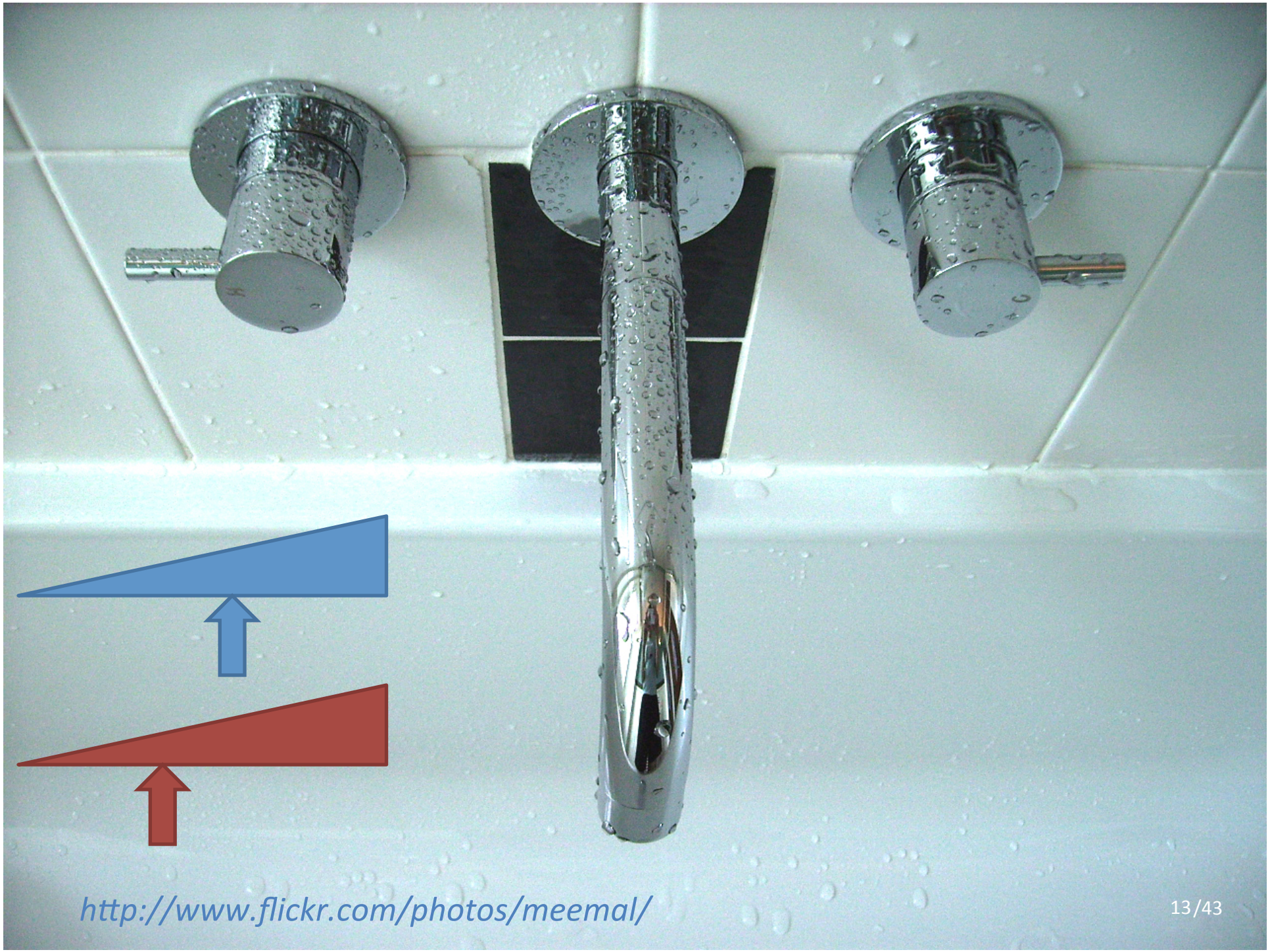
http://www.flickr.com/photos/seannaber/3221154105/



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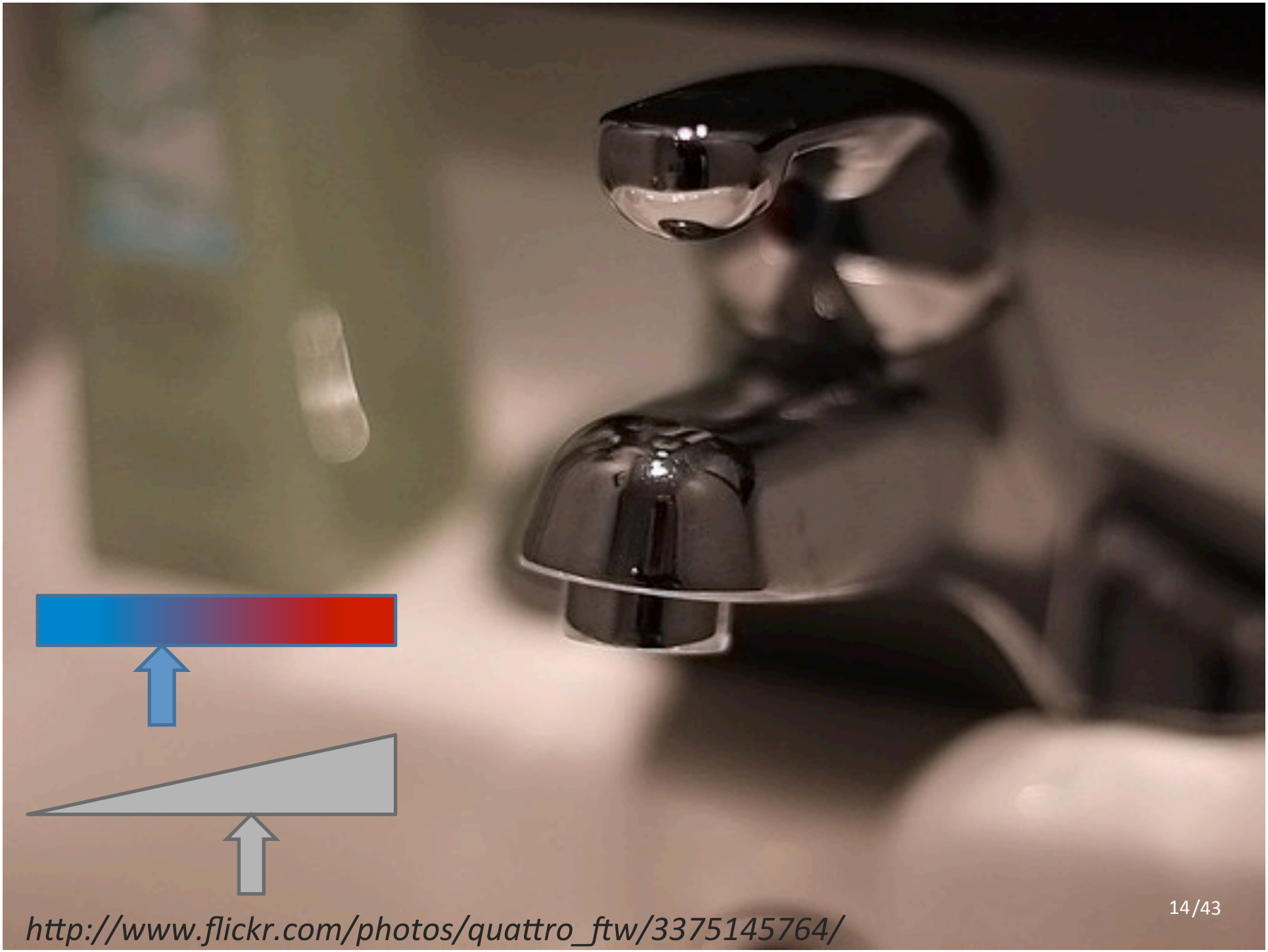

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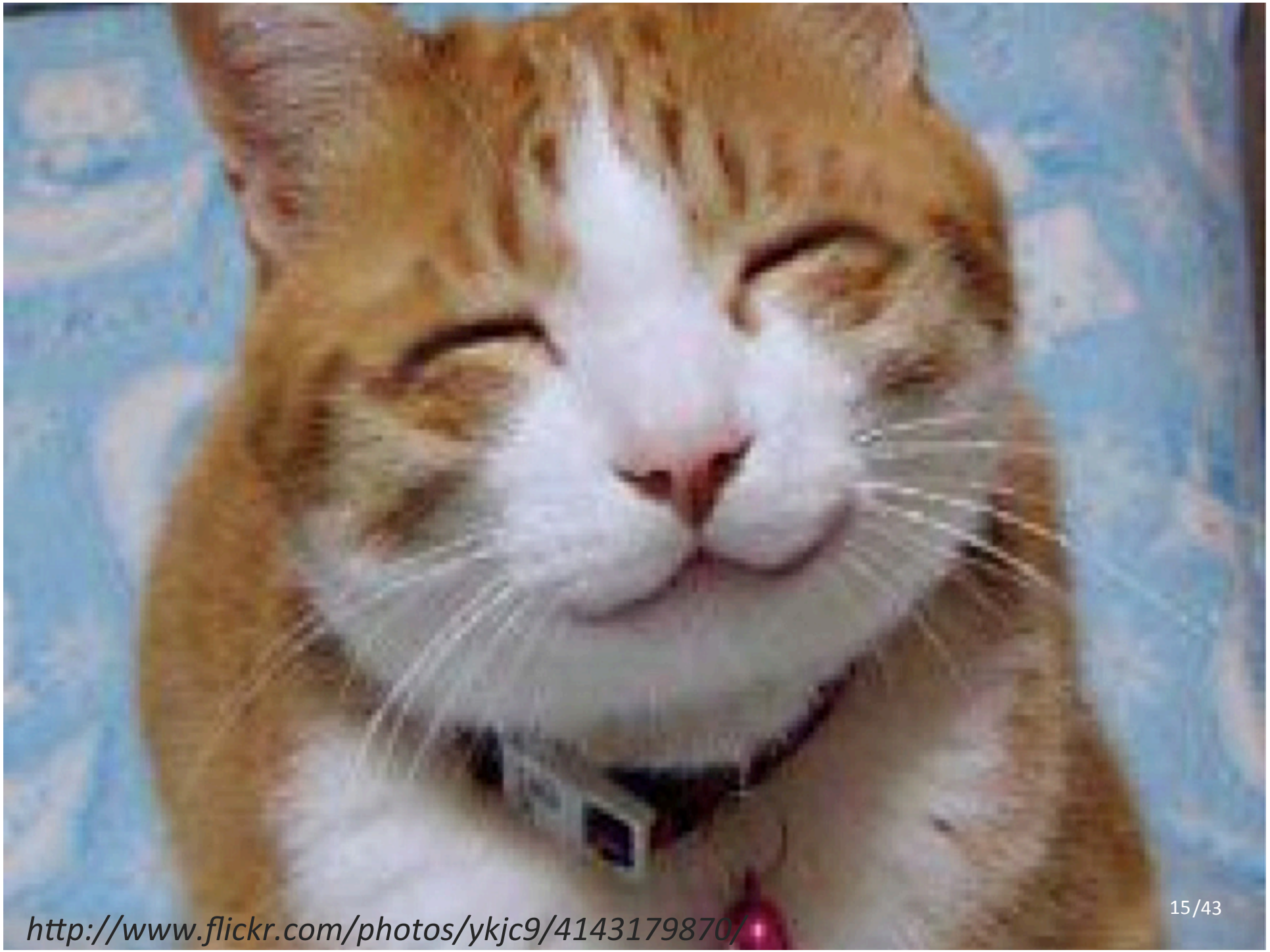

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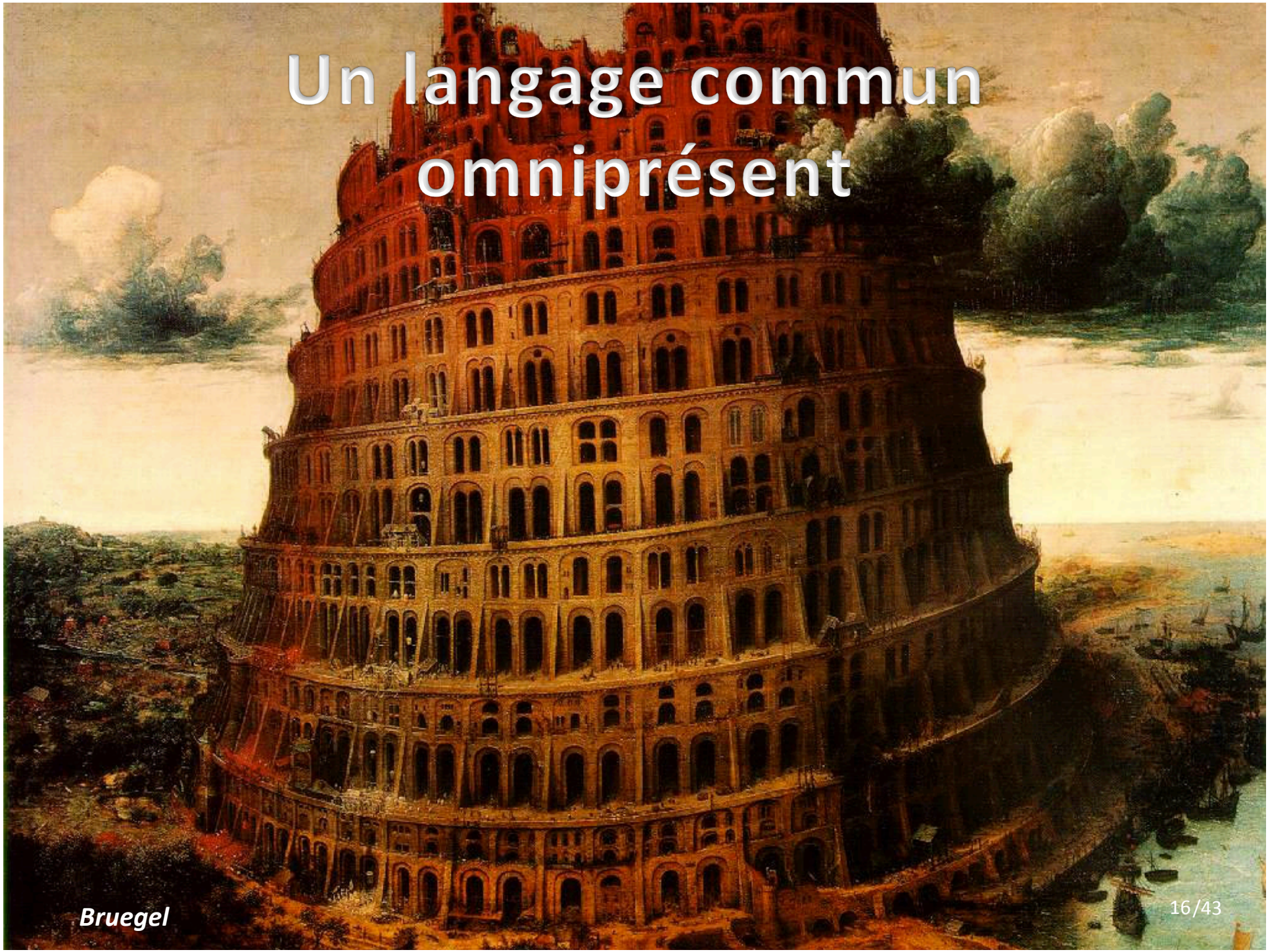
Un langage commun omniprésent

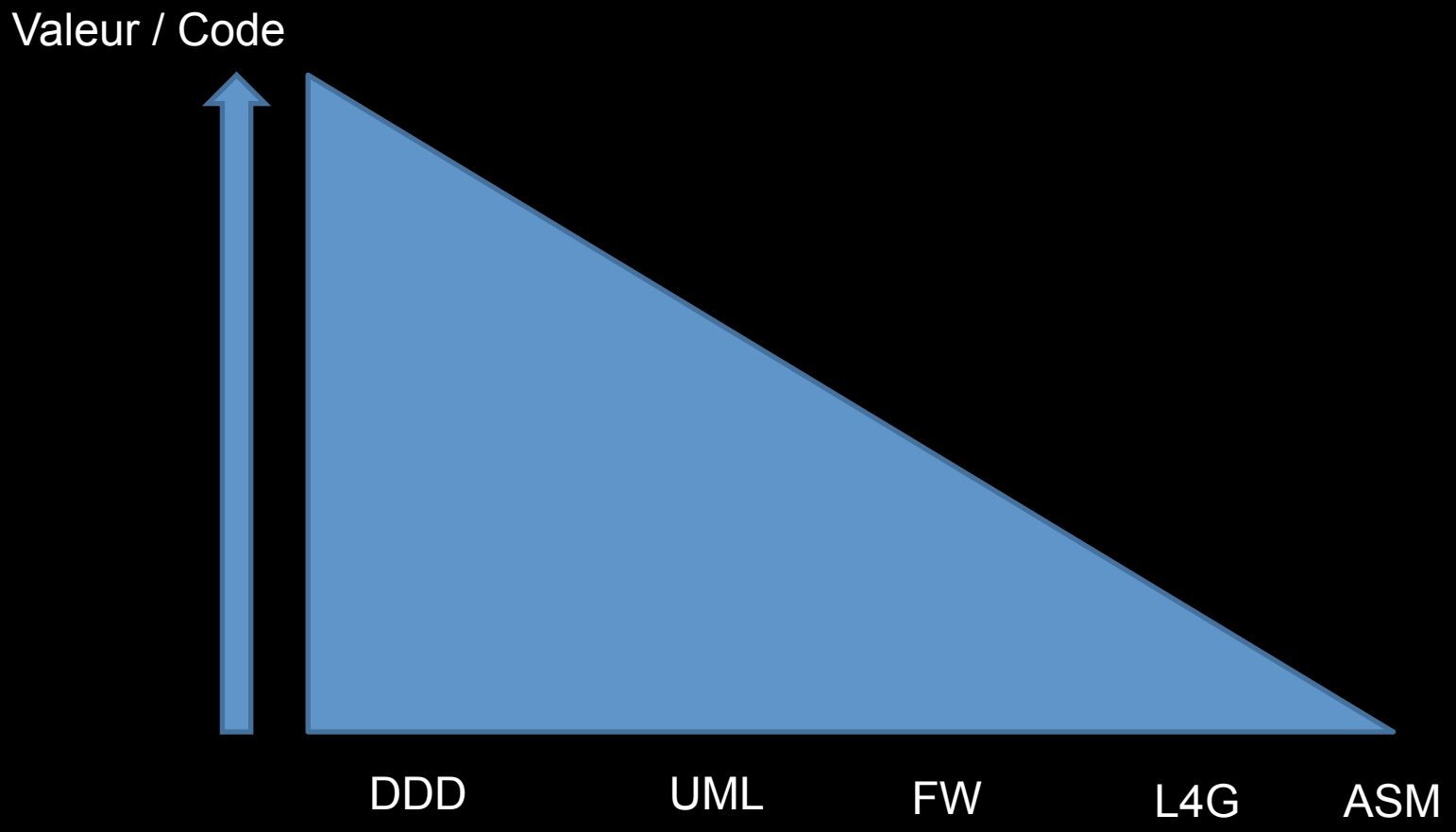


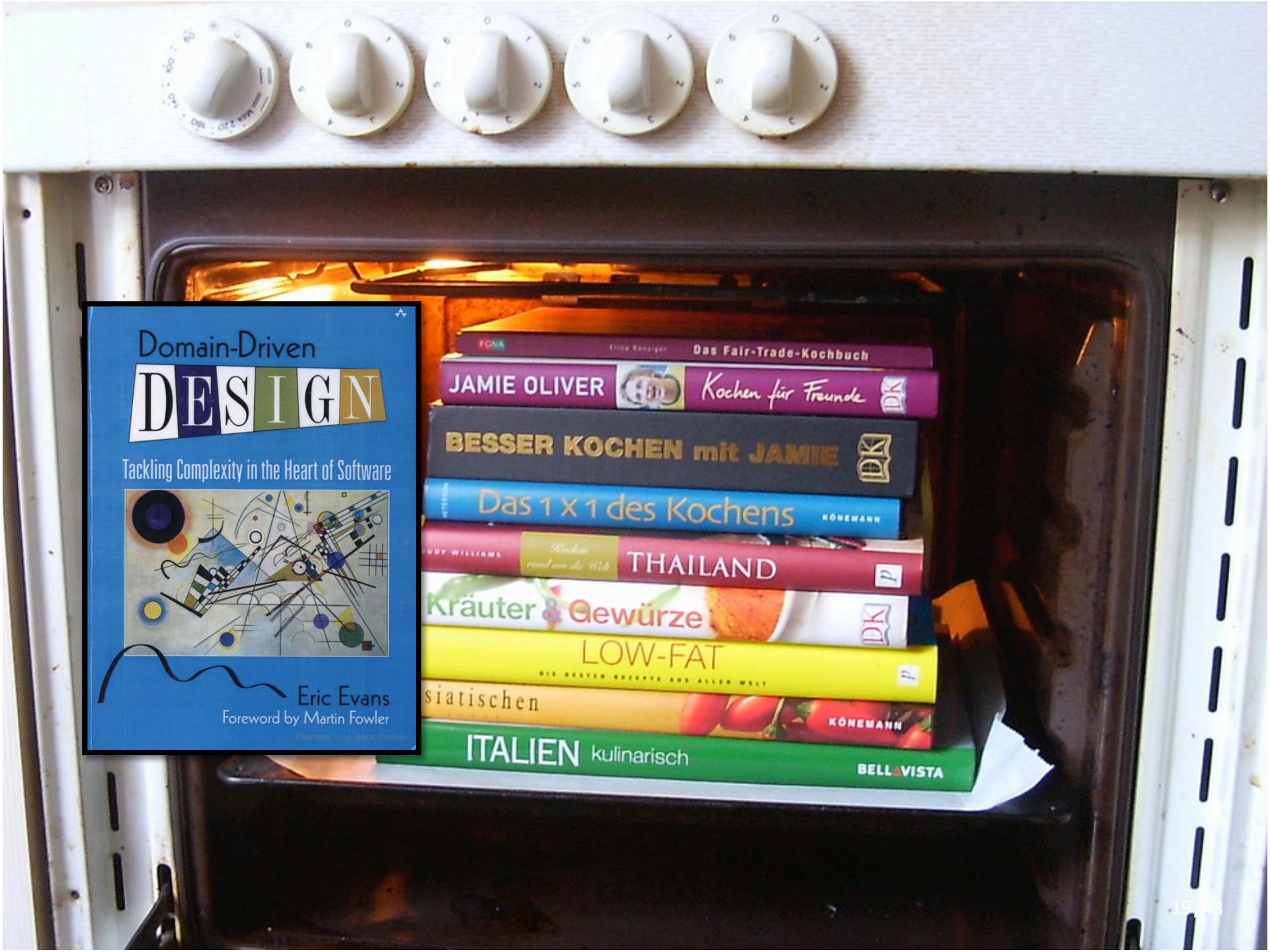
Bruegel

Cœur du domaine

- Ce qui a le plus de valeur
  - Avantage concurrentiel
- Par qui ?
  - Développeurs
    - Talentueux
    - Pérennes
- Personnalisé et évoluant

Valeurs et développeurs

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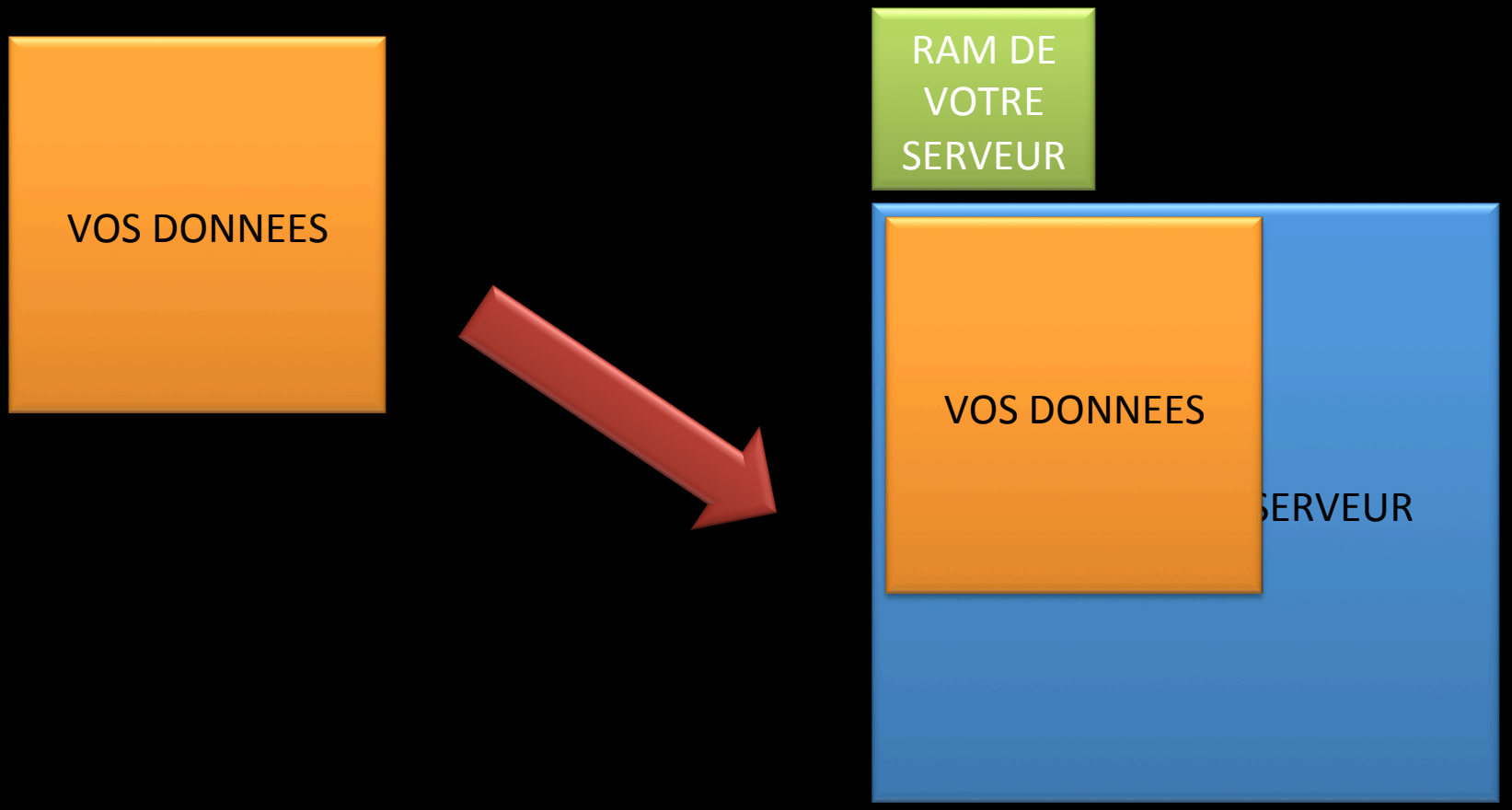
Das Fair-Trade-Kochbuch
JAMIE OLIVER
Kochen für Freunde
BESSER KOCHEN mit JAMIE
Das 1 x 1 des Kochens
THAILAND
Kräuter & Gewürze
LOW-FAT
ITALIEN kulinarisch
BELLA VISTA

Technologie de persistance

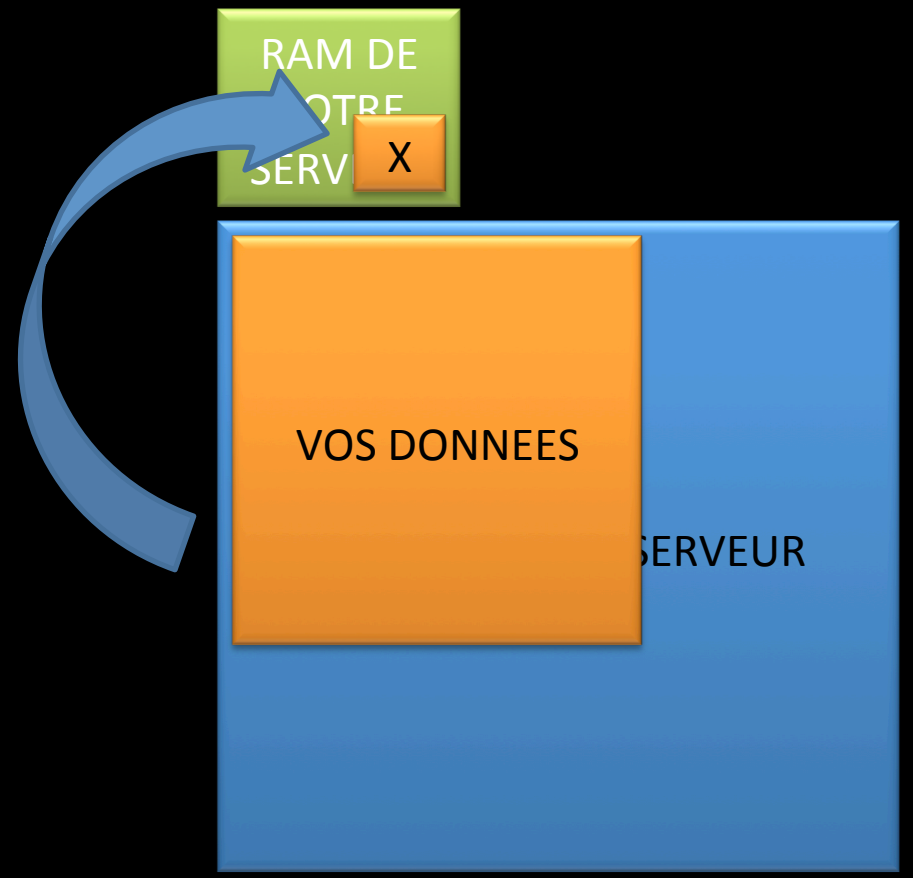
PRÉVALENCE OBJET

Il y a 20 ans…



Les conséquences

Besoin de monter efficacement de la donnée nécessaire au traitement depuis les disques durs vers la RAM

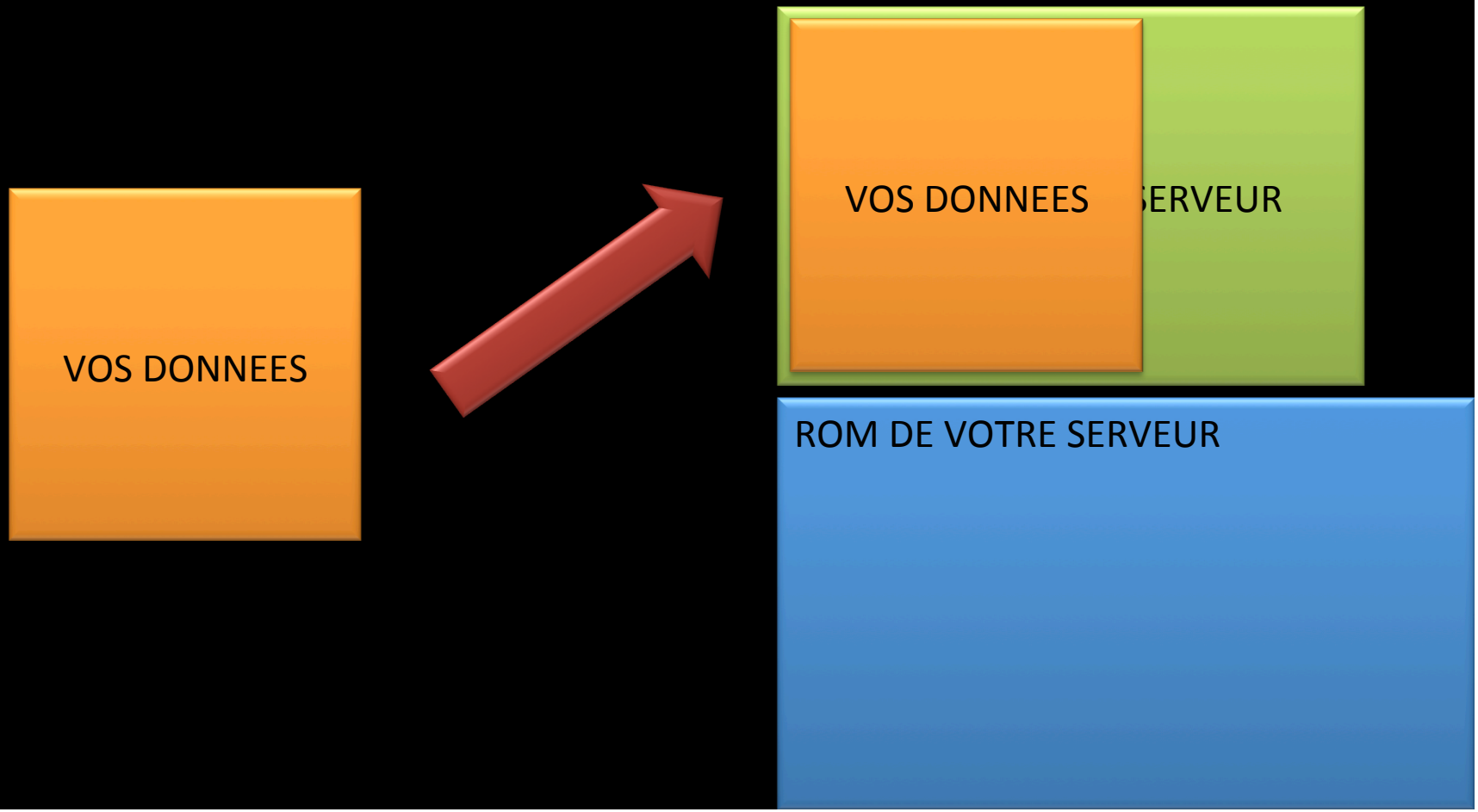


Pour réaliser ceci

- Langage de requête de données SQL
- Moteurs SGBD-R
- Gestion avancée de caches, d'index, de b-tree
- Des millions de lignes de code
- Des milliards de dollars de chiffre d'affaire

Tout ça pour monter des données de la ROM à la RAM…

Aujourd'hui



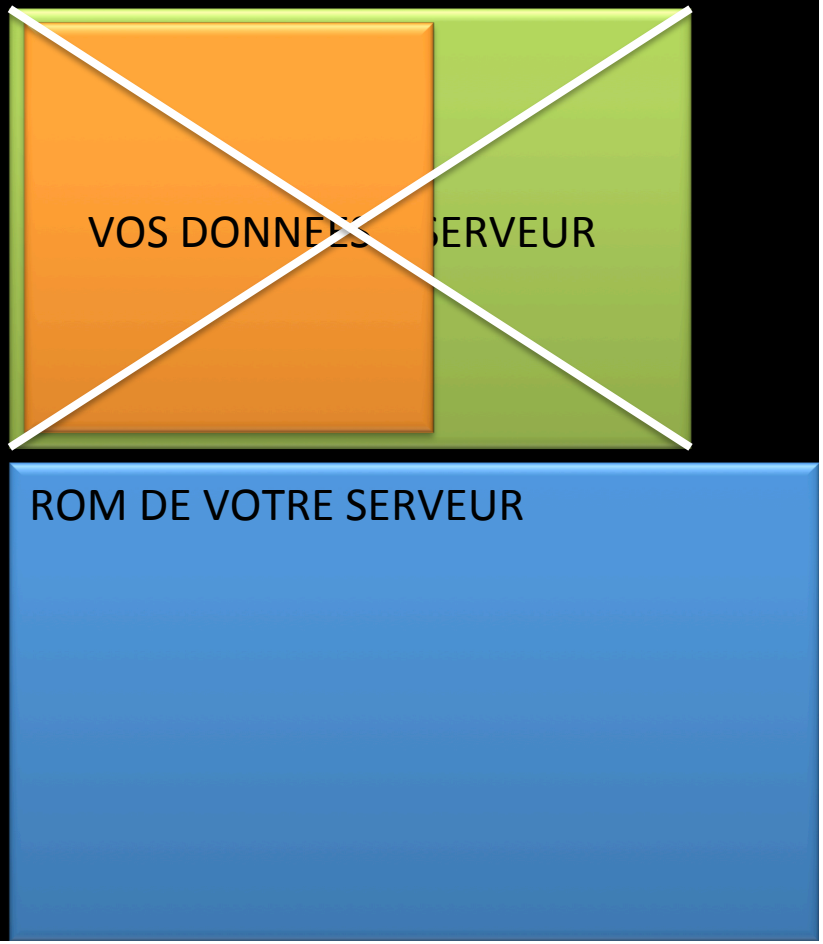
Les conséquences

- Plus besoin de base de données
- Plus d'optimisation SQL complexe
- Performances extraordinaires
- Plus de mapping O/R !!!
- En fait, plus de gestion de la persistence
- Le modèle, c'est le métier

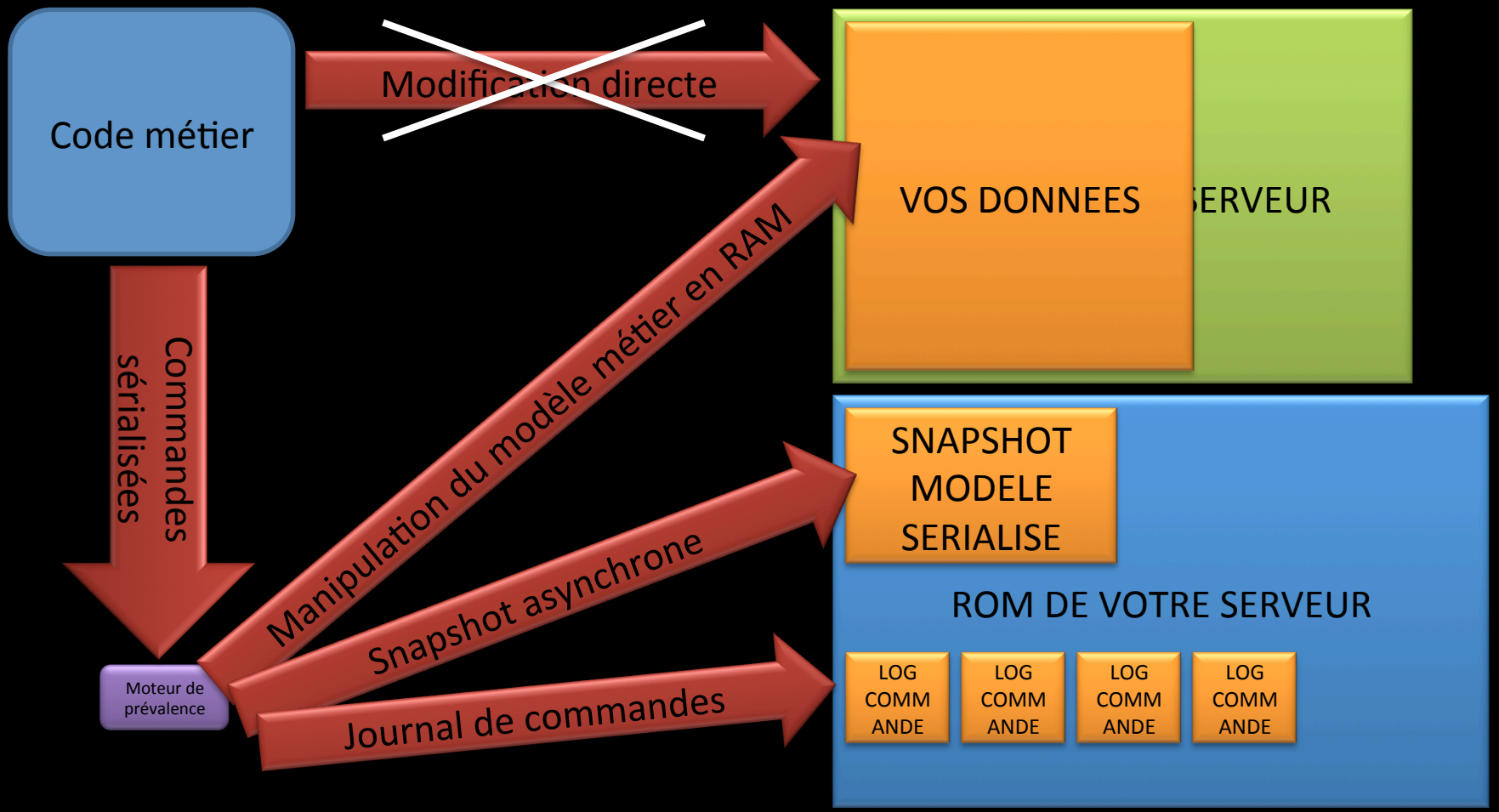
Ca commence à sentir le DDD…

Oui, mais…

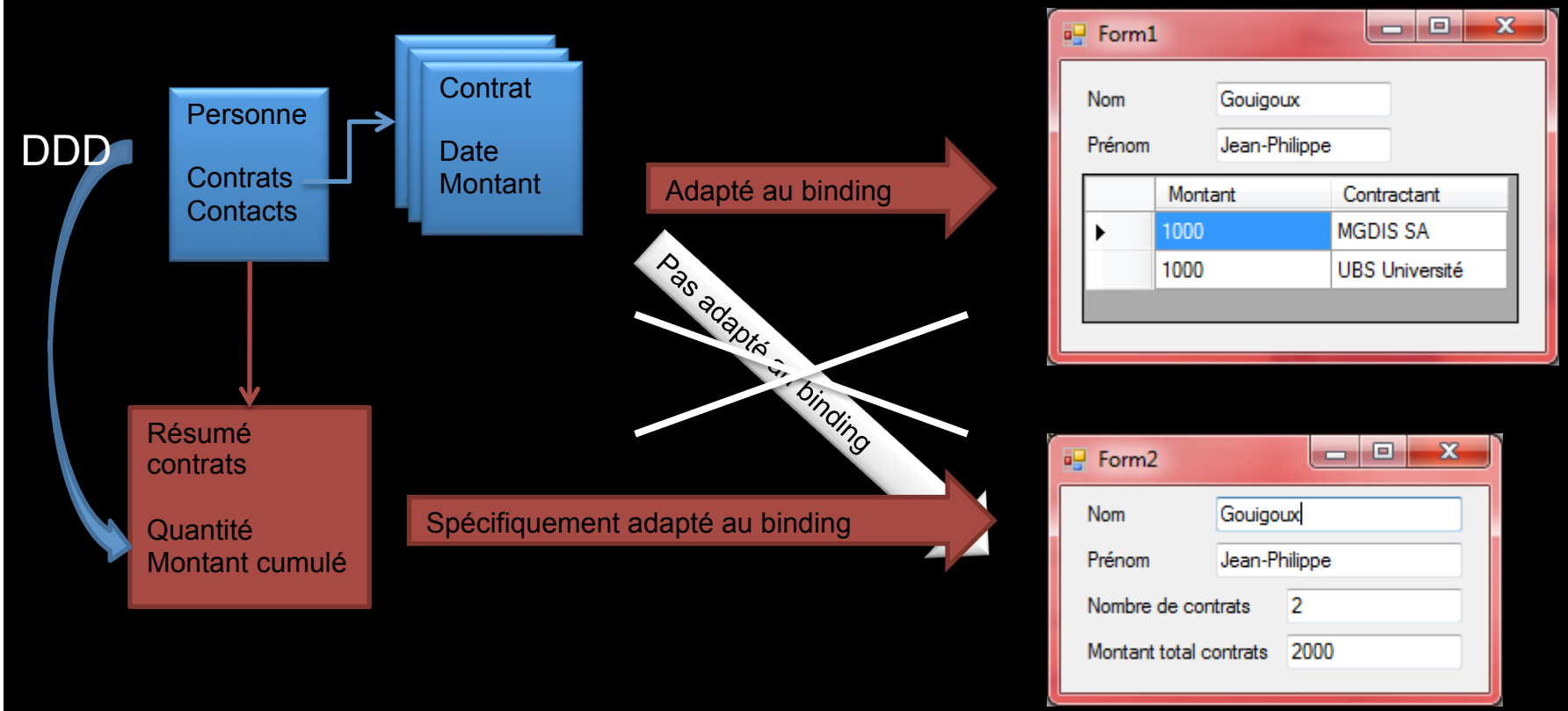
Panne d’électricité, arrêt du serveur pour maintenance



Bienvenue à la prévalence



Exemple de modèle dénormalisé



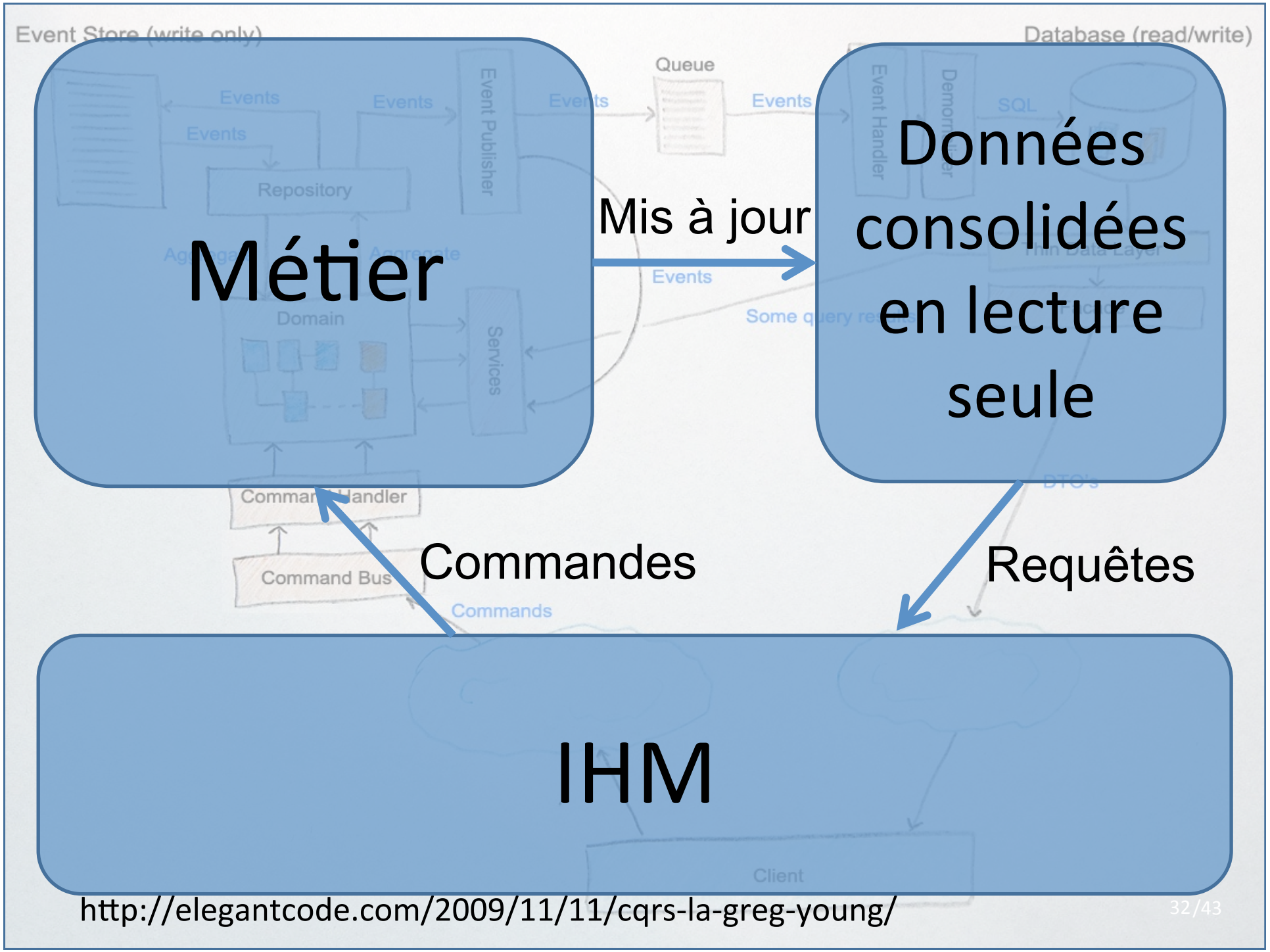
En pratique

- Framework Bamboo .NET / Prevayler JAVA
- 175 Ko seulement
- Plus de détails sur mon blog http://blogs.dotnet-france.com/jeanphilippeg
- Ou « prévalence + linq » sur Google
- Rien de mieux qu'un petit Dojo de démo (attention : application autonome)

DEMO

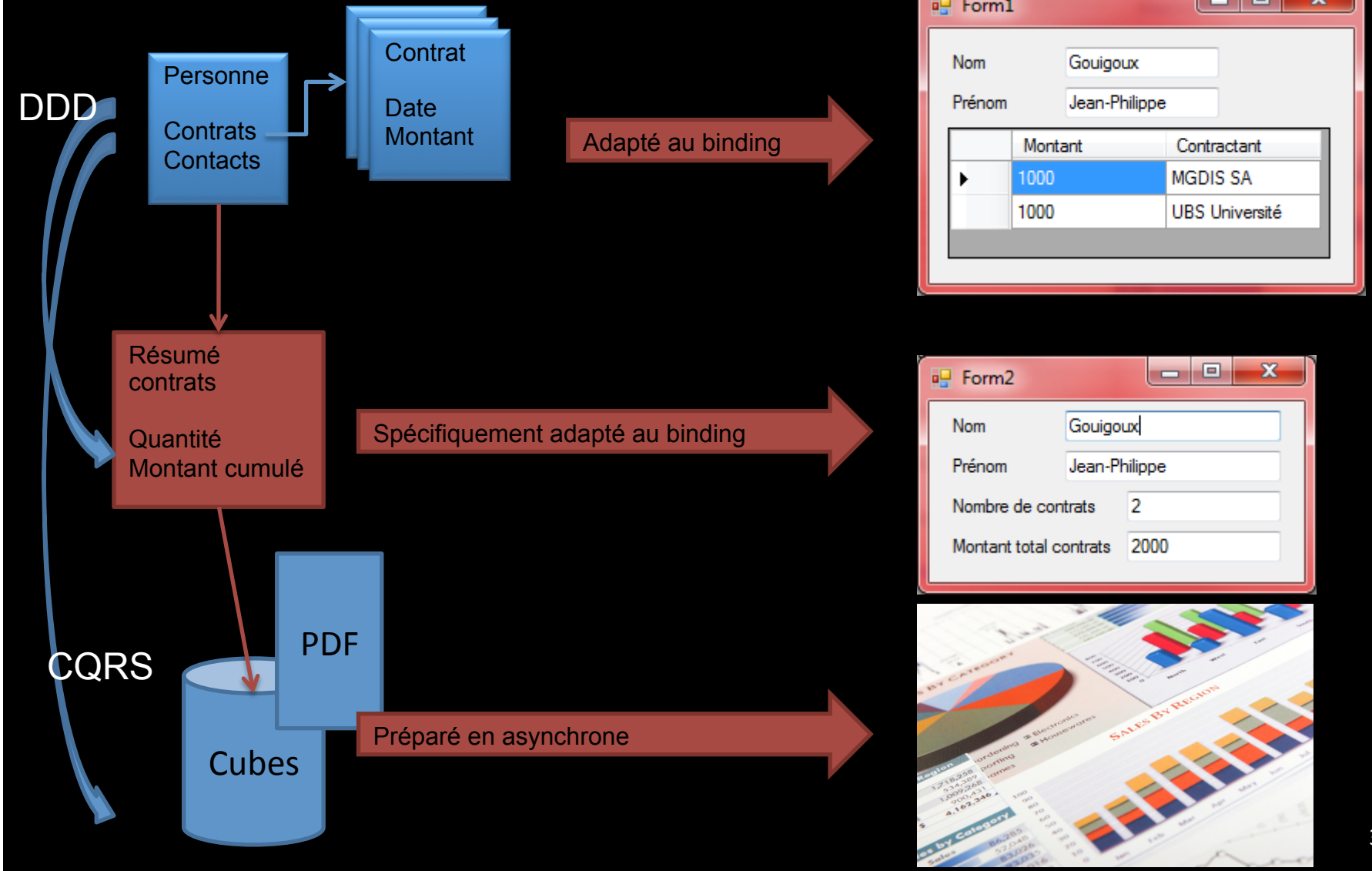
Architecture

CQRS (COMMAND AND QUERY RESPONSIBILITY SEGREGATION)

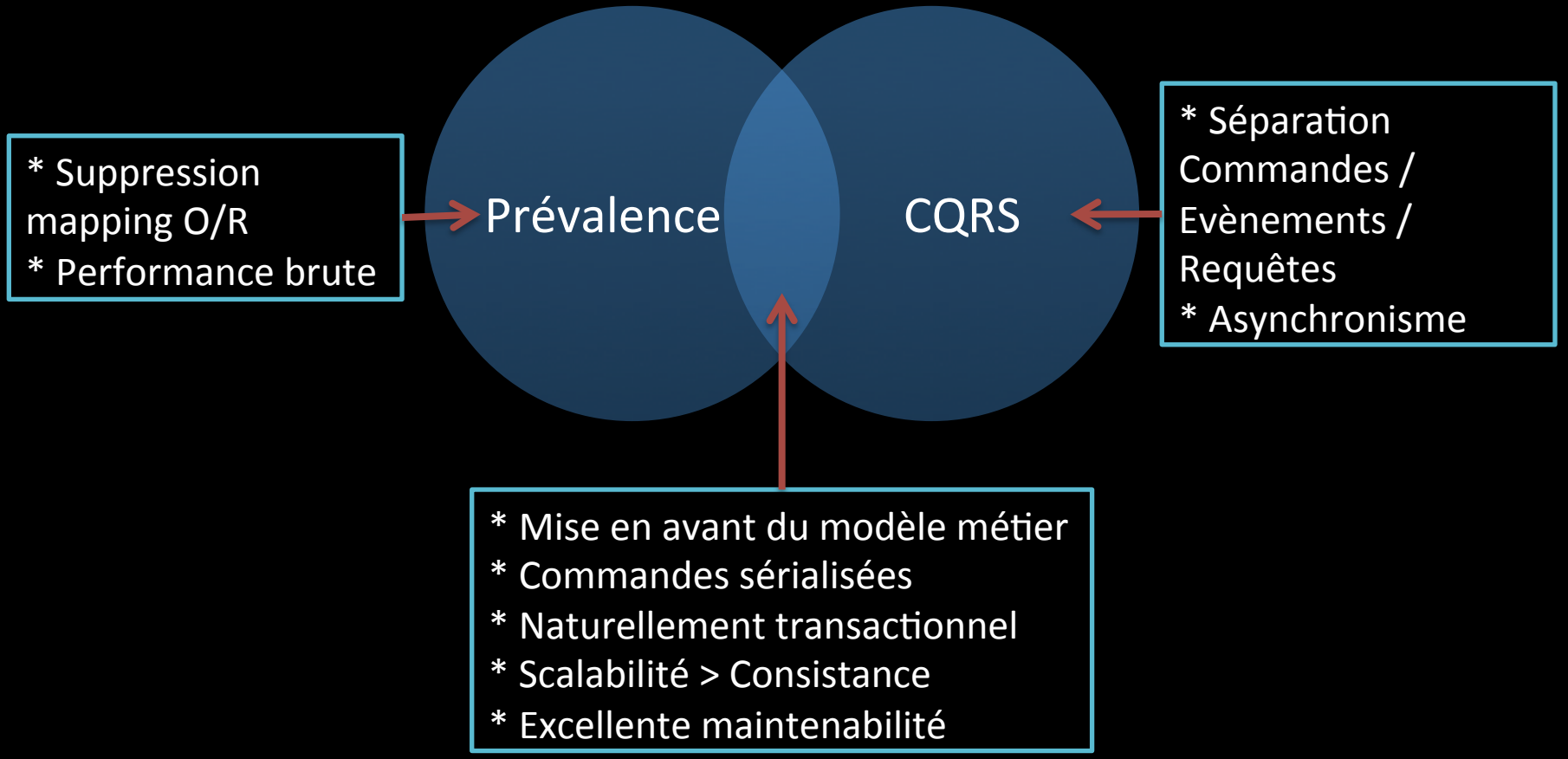


http://elegantcode.com/2009/11/11/cqrs-la-greg-young/

Couche reporting en plus



Prévalence ≠ CQRS



Pointeurs

- Eric Evans
  - DOMAIN-DRIVEN DESIGN, Addison-Wesley
  - http://domaindrivendesign.org/
- CQRS
  - http://cqrsinfo.com
- Prevalence Objet
  - http://bamboo.sourceforge.net
  - http://www.prevayler.org
  - search://gouigoux+prevalence

QUESTIONS

BONUS

Exemple de Linq

- SQL :

```
List<Personne> PersonnesDebutAnnuaire = new List<Personne>();
SqlCommand Commande = new SqlCommand(
    "SELECT nom, personne FROM PERSONNE WHERE nom LIKE 'A%' ORDER BY nom",
    ConnexionSQL);
using (SqlDataReader Lecteur = Commande.ExecuteReader(CommandBehavior.CloseConnection))
    while (Lecteur.Read())
        PersonnesDebutAnnuaire.Add(
            new Personne(
                Lecteur.GetString(0),
                Lecteur.GetString(1)));
```

- Linq en C# :

```
var PersonnesDebutAnnuaire = from personne in Donnees.ListePersonnes
                             where personne.Nom.StartsWith("A")
                             orderby personne.Prenom
                             select personne;
```

Plus loin avec Linq

```
decimal SommeMetier = Reservations
    .Where(Resa => Resa.UID.Split(new char[] { 'a' }, StringSplitOptions.RemoveEmptyEntries).Count() > 3)
    .Bareme(Resa => Resa.Description.Length, Resa => Resa.DateDebut)
    .Sum(Valeur => Valeur);
```

```
public static IEnumerable<decimal> Bareme<T>(this IEnumerable<T> Liste, Func<T, decimal> BaseCalcul, Func<T, DateTime> DateApplication)
{
    foreach (T Atome in Liste)
    {
        int[] Coefficients = new int[] { 0, 4, 9, 12 };
        DateTime DateCoefficients = DateApplication(Atome);
        if (DateCoefficients.DayOfWeek == DayOfWeek.Wednesday) Coefficients = new int[] { 0, 5, 10, 15 };
        else if (DateCoefficients.DayOfYear > 210) Coefficients = new int[] { 0, 3, 8, 20 };

        decimal Resultat = 0;
        decimal ValeurReference = BaseCalcul(Atome);
        if (ValeurReference < Coefficients[0]) Resultat = -1;
        else if (ValeurReference < Coefficients[1]) Resultat = 0;
        else if (ValeurReference < Coefficients[2]) Resultat = 1;
        else if (ValeurReference >= Coefficients[3]) Resultat = 2;
        else Resultat = 3;
        yield return Resultat;
    }
}
```

Performance ? Maintenabilité ?

- Prévalence + Linq :
  - 3 minutes pour coder la requête métier
  - 1,57 secondes pour calcul sur 250 000 objets
- SGBD + SQL :
  - Pas réussi à écrire une requête performante au bout de 30 minutes
  - Un spécialiste pourra le faire, mais pas en 3 minutes (je prends le pari)