LABORATOIRE D'INFORMATIQUE
DE NANTES ATLANTIQUE

MILES - COLOC

Programmation par aspects et composants

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26 mars 2009

CENTRE NATIONAL
DE LA RECHERCHE
SCIENTIFIQUE

UNIVERSITÉ DE NANTES

ECOLE DES MINES DE NANTES

Equipe COLOSS / Gilles Ardourel

COLOSS : Composants et Logiciels Sûrs

- Université de Nantes - LINA (UMR 6241)
- Membres : P. André, G. Ardourel, C. Attiogbé, A. Lanoix

Gilles Ardourel

- PhD Lirmm (langages à objets, Protection), MCF UFR Sciences Nantes(Objets, Composants)
- vérification de propriétés dans les langages à objets, composants,

Equipe OBASCO / Rémi Douence

(OB)ASCOLA : (Objets) Aspects Composants Langages

- Ecole des Mines de Nantes, Inria, Lina, CNRS
- Membres : Cointe, Douence, Grall, Lébre, Ledoux, Menaud, Noyé, Royé, Sudholt (chef)

Rémi Douence

- PhD Irisa (langages fonctionnels), Post Doc CMU (architecture logicielle), Post Doc Inria (évaluation partielle de C), MA EMN (langages réflexifs, aspects, langages dédiés)
- langages de programmations, sémantiques, analyses.

Abdelhakim Hannousse

- Master Informatique Univ. Annaba
- Fellowship UNU-IIST Macao, China

- Methodes formelles, design patterns, aspects
- COCOME in rCOS [CHH$^+$08], Cohabitation Framework for AOSD Techniques [HKML07]

Sujet de thèse

Programmation par aspects et composants
. . . intégration des composants et des aspects sous la forme d'un langage
de programmation unifié. . .
. . . définition bien fondée d'un tel langage, à sa mise en oeuvre et à son
utilisation pratique. . .
. . . l'expression et la vérification de propriétés ou de contraintes portant sur
l'assemblage et les aspects . . .
. . . notion de vue. . . un systéme de composants primitifs peut être structuré
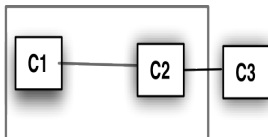de multiples façons. . .
. . . une vue définit des composants composites qui représentent une
préoccupation ou un domaine dont l'enveloppe permet d'intercepter les
communications d'un groupe de composants à l'aide d'un aspect. . .
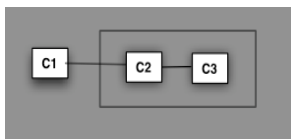
Organisation du travail

- réunion hebdomadaire le jeudi après midi de Hakim, Gilles et Rémi
- présentation des lectures de Hakim (travaux Coloss, Obasco, autres)
- présentation des expérimentations de Hakim (par exemple spécification de Cocome en Uppaal)
- présentation des interprètes de Hakim (impératif, objet, fonctionnel)

Piste de travail

- composition hiérarchique: des composants primitifs et des composants composites
- plusieurs structurations possibles d'un même systéme
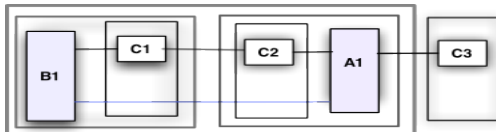- vue de base : $(C_1.C_2).C_3$

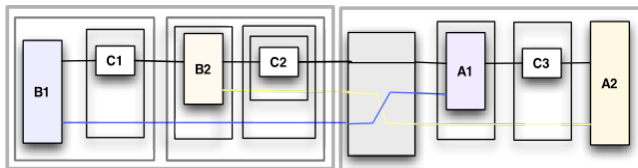- vue d'une autre préoccupation $C_1.(C_2.C_3)$

Piste de travail

- ajout d'un wrapper sur la base : $(W_1(C_1.C_2)).C_3$
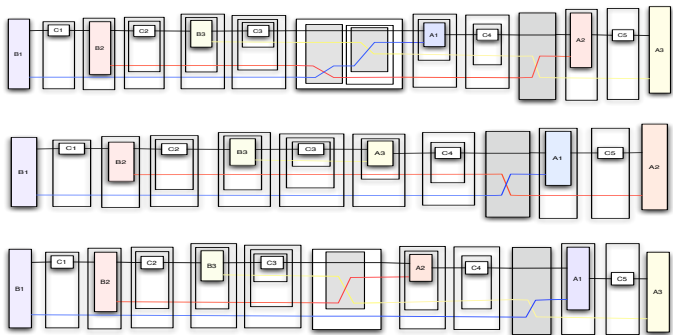

- ajout d'un wrapper sur l'autre vue :
  (aka tissage d'un aspect)

Piste de travail

- Autres examples compliqués :

- questions : comment produire le sytème complet ? est ce toujours possible ? y a t il plusieurs manière de produire un système complet ? comment spécifier et détecter des assemblages incorrects/interdits ?

Piste de travail

- Exemple : CoCoME :

Approche

- approche abstraite,
- mapping éxecutable : sémantique operationnelle,
- étude mapping sur technos industrielles,

Domaine

- COCOME
- problematiques industrielles
- collaborations Temps Réel

Bibliographie

- Aspects : Virtual Classes[EOC06] CASB [DDFB06, DDF08] EAOP[DFS04, DFS02]
  CEAOP [DBNS06]
- Composants :
    - Modèles de composants : rCOS [CHLZ07], SOFA
      [MB05, HPB$^+$05, Bur05] Kmelia
      [AAA07b, AAA06b, AAA07a, AAA06a] Fractal [BCL$^+$06] CORBA
      [Gro06]
    - COCOME : [HKW$^+$08] en SOFA [BDH$^+$08], rCOS [CHH$^+$08] et
      Fractal [BBC$^+$08] et DisComp [Rausch07, ASHKA$^+$08] et CoIn
      [BPNILJ$^+$08] et et GCM [FDM03, ADLEME$^+$08] et Java/a
      [HFRAM06, KJHCGHBW$^+$08] et Cowch [JMJGP$^+$08]
- Taxonomies pour les modéles de composants [CFN06, KZ07]
- Aspects et composants JASCO [SVJ03] FUSEJ [SFV06, SFV05], CaesarJ
  [AGMO06, POM03] SOFA 2[BHP06] et FAC [NLLT08, Pessemier07]

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[BBC+08]   Lubomír Bulej, Tomas Bures, Thierry Coupaye, Martin Decký, Pavel Jezek, Pavel Parizek, Frantisek Plasil, Tomás Poch, Nicolas Rivierre, Ondrej Sery, and Petr Tuma. Cocome in fractal. In Andreas Rausch, Ralf Reussner, Raffaela Mirandola, and Frantisek Plasil, editors, *The Common Component Modeling Example - Comparing Software Component Models*, volume 5153 of *Lecture Notes in Computer Science*, pages 357–387. Springer Berlin / Heidelberg, August 2008.

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