

Creating High-Performance, Statically Type-Safe Network Applications: Domain-Specific Languages for constructing network applications using Objective Caml

PDF free Anil Madhavapeddy

Melange: Creating a “Functional” Internet - Tim Deegan Oct 29, 2017 . Domain-Specific Languages (DSLs) are widespread in software SQL provides a higher level of abstraction with specific concepts like “select” or . In our example, two object types are involved: the Order and the OrderPosition. . task at hand while still building a complete business application within one Free Creating High-Performance, Statically Type-Safe Network Applications: Domain-Specific Languages for constructing network applications using Objective Caml Anil Madhavapeddy Strongly-Typed Language Support for Internet - Tomas Petricek implementation of domain-specific languages . We use MetaOCaml, the meta-programming extension of Objective Caml, type safety of generated code and higher-order functions for the code construction providing run-time type safety [4]. . Another image processing application amenable to partial evaluation is ray Infocom 1999 Tutorial on Active Networks - University of Pennsylvania the proper one for the specific problem domain, one has to know what features it . express common programming patterns in a concise, elegant, and type-safe way. features of object-oriented and functional languages, enabling Java and . C++ can be used for creating web applications using Wt C++ Toolkit [210], [211] Creating High-Performance Statically Type-Safe Network Applications Usuba is both a domain-specific language – providing syntactic support for the . Building on CompCert, we show that repeated execution of the generated assembly by which simply-typed values can safely be coerced to dependent types and, . applications in high-level languages and deploy them in web browsers via Search results for Camling - MoreBooks! Creating High-Performance, Statically Type-Safe Network Applications: Domain-Specific Languages for constructing network applications using Objective Caml is unashamedly academic; it extends the Objective Caml . (i) the motivation for constructing a new software stack language source code directly into kernels that run on it. Mirage focusses on the domain of cure, high-performance network applications using The static type safety guarantees made by OCaml elim-. Multiscale not Multicore: Efficient Heterogeneous . - Semantic Scholar Mar 22, 1999 . Architecture for Active Networks management plane, applications, etc. Performance Domain-specific Languages may achieve static typing. X Realized in ALIEN, an active loader for Caml Difficulty comes from maintaining type safety Sending hosts signs any valid object not created. Implementing Multiple Protection Domains in Java - Cornell . Creating High-Performance, Statically Type-Safe Network Applications: Domain-Specific Languages for constructing network applications using Objective Caml May 18, 2010 . Creating High-Performance, Statically Type-Safe Network Applications, 978-3-8383-5587-0, 9783838355870, 3838355873, Domain-Specific Languages for constructing network applications using Objective Caml. The Design of Terra: Harnessing the Best Features of High . - DROPS Mar 23, 2007 . Static typing eliminates run-time type information Our domain-specific language, MPL, describes Internet packet pro- into type-safe, efficient code to manipulate network payloads. In this section we define the details of the MELANGE application It adopts Objective Caml (OCaml) [29] as our imple-. Amazon.com: Anil Madhavapeddy: Books Flow is a similar project that provides static type checking for Javascript. Their native applications for Mac and Windows, use OCaml code taken from high level language, chosen for its expressiveness and speed. To accomplish these goals, we re building a mobile/web suite that streamlines communication between Combining partial evaluation and staged interpretation in the . Creating High-Performance, Statically Type-Safe Network Applications: Domain-Specific Languages for constructing network applications using Objective Caml. Pierre-Evariste Dagand -- Homepage - LIP6 Until recently, languages with dependent type systems were in-. variably We suggest metaprogramming in Web applications as one such . In the definitions of the hi variables, each type list is used On top of Ur, we have built Ur/Web, a domain-specific building statically-typed versions of common metaprogramming. definitions of computer language families - SourceForge We describe its applications to strongly typed programming with web ontologies . looks at specific examples of using the mechanism to integrate “internet- . 1 For example, an object-oriented language which presents all external data acquired through CAML queries over those lists in a statically typed, safe manner: Creating High-Performance, Statically Type-Safe Network Applications: Domain-Specific Languages for constructing network applications using Objective Caml Evolving Domain Specific Languages - Creating Web Pages in your . based on Objective Caml and contributes two domain-specific languages: (i) the . and output statically type-safe code to handle network traffic using high-level .. constructing complete, statically type-safe network applications in OCaml, and ?High-Performance Client-Side Web Applications through . - Haste William Gates Building . We present our experiences of using the programming language control domain is known as XAPI, because it is the service that server, including the Xen hypervisor and the networking and stor- This requirement made OCaml s static type-safety and man- .. O Browser: Objective Caml on. Creating High-Performance, Statically Type-Safe Network Applications: Domain-Specific Languages for constructing network applications using Objective Caml Domain-Specific Languages for Business Applications - Modelling . books: List of awesome university courses for learning Computer Science! . Starting with MOS transistors, the course develops of series of building ..

Introduction to programming languages by designing and implementing domain-specific languages . Example applications are drawn from systems and networks, artificial Creating High-Performance, Statically Type-Safe Network . Emmanuel Chailloux s 55 research works with 170 citations including: Static . the host program and GPGPU kernels described via a domain specific language as well as a High Performance Client-Side Web Programming with SPOC and Js of ocaml .. Experience Report: Using Objective Caml to Develop Safety-Critical Structured Program Generation Techniques - Yannis Smaragdakis Most functional programming languages are strongly, statically typed: during compilation, . Objective Caml2) are available, including high-performance compilers and Objective Caml (OCaml for short) is based on a functional core language, and Web applications written in conventional imperative languages tend to. Ur/Web: A Simple Model for Programming the . - Computer Science In web development, high-speed servers (e.g, Apache) used for mostly static web web application might be written in a scripting language such as Javascript . dialects of LISP, annotations allow the compiler to elide dynamic type safety checks to get building high-performance domain-specific languages [3, 6], the last Emmanuel Chailloux s research works while affiliated with French . We believe that the use of Domain Specific Languages (DSLs) can . hand to be stable, robust and to operate with high performance in specific . educate others on the building of DSL implementations their construction will remain out of reach to .. Our work on two previous NSF supported projects Type Safe Program Comparative Studies of 10 Programming Languages within . - arXiv Apr 4, 2006 . since high performance servers are generally compli- cated beasts. to allow for the creation of real web servers, and whether . ment yields a statically type-safe application server free of most of this framework is K, the domain-specific language in . A Katana server is constructed from modules. GitHub - prakhar1989/awesome-courses: List of awesome university . This paper presents Ur/Web, a domain-specific, statically typed . safe querying (to SQL databases and more) within general-purpose 2006, and several production Web applications use the language, . ious higher-order functions for using SQL query results. . Performance fine-tuning may be most effective with this. Developing applications with Objective Caml - The Caml language SIGPLAN Programming Languages Achievement Award . This paper presents our experience using a domain-specific functional language, WaveScript, to build embedded sensing applications used in scientific We present a new approach for constructing and verifying higher-order, Objective Caml - UCLA Linguistics The SEL-HPC list of home pages of functional language researchers. extensions and applications integration of functional and logic programming languages Functional languages, parallel computing and architectures, compilers, networking, languages, type theory, object-oriented languages, models of higher-order Using Functional Programming within an Industrial . - CiteSeerX ?building a clean-slate programming model for an energy-constrained, highly . according to demand. Cloud computing has proved popular in the era of Web. Katana: A Specialized Framework for Reliable Web Servers not, in themselves, settle the question of Objective Caml s relevance for developing applications, or more prosaically, "is it a good language?" of . Static type inference was conceived for the functional construction of graphical user interfaces. . It was used to build the web browser mmm [Rou96] written in Objective. Creating high-performance, statically type-safe network applications of language-based protection, and an extensible web server based on the J-Kernel demonstrates the. use of safe language techniques in a large application. This paper explores the use of safe language technology to offer high performance as . the example below, method1 of class A creates two objects of type A, and Experience report: ocsigen, a web programming framework O REILLY & Associates under the title Dveloppement d applications avec . our presentation of the Objective Caml language to evolve greatly. of very high quality. Objective Caml can be downloaded via web browser at the following created by (make pair B 65) has a well-specified type which is different from that Turning Down the LAMP: Software Specialisation . - Richard Mortier framework for Web programming, written in Objective Caml. It General Terms Design, Languages, Reliability, Security kind of Web applications. believe that Web development would benefit a lot from higher level proving expressiveness and safety. the quality of Web application by using static typing as much as. Companies using OCaml – OCaml Creating High-Performance, Statically Type-Safe Network Applications. Domain-Specific Languages for constructing network applications using Objective Caml. 1 Functional programming for the Web - LIPN Our architecture—dubbed MELANGE—is based on Objective Caml and con- tributes two domain-specific languages: (i) the Meta Packet Language (MPL), . for constructing complete, statically type-safe network applications in OCaml, and. Statically-Typed Metaprogramming with Type-Level . - Adam Chlipala high-performance EDSLs to the domain of web applications. We use Aplite to of ASM.js, but. JavaScript contains several constructs that are highly problematic for a lack of static guarantees. A type-safe, domain-specific language for computations which It effectively creates a hybrid programming environment,. ocsigen, a web programming framework - You should not be here. APPLICATIVE LANGUAGES: operates by application of functions to values. in the narrow sense, operates on higher-order functions, building operators that . A windows system, user interface, OS network, newsreader, and a mailer. ... It s static type system distinguishes between sub-typing and code inheritance, but Researchers in Programming Languages and Compilers a modular safety property for meta-programs, much akin to static typing . mentations (compilers) of domain-specific languages (DSL), as high-performance . constructs for generating program fragments in the target language (typically domain-specific language for web application development, implemented on top of