Club de veille technologique animé par
GRILOG & l'INRIA Grenoble - Rhône-Alpes

Green IT, Green by IT
et Developpement Durable

Bibliographie Intech

" Aujourd'hui, être " vert " n'est plus une lubie, c'est un impératif technique et économique ", Gérald Dulac, président d'Eolas.

I. Entrée en matière

Quelques définitions

Développement durable - http://fr.wikipedia.org/wiki/D%C3%A9veloppement_durable

Le **développement durable** est une nouvelle conception de l'intérêt public, appliquée à la croissance économique et reconsidérée à l'échelle mondiale afin de prendre en compte les aspects environnementaux généraux d'une planète globalisée.

Green computing (ou Green IT) - http://en.wikipedia.org/wiki/Green_computing

Green computing or green IT, refers to environmentally sustainable computing or IT. In the article *Harnessing Green IT: Principles and Practices*, San Murugesan defines the field of green computing as "the study and practice of designing, manufacturing, using, and disposing of computers, servers, and associated subsystems—such as monitors, printers, storage devices, and networking and communications systems—efficiently and effectively with minimal or no impact on the environment The goals of green computing are similar to green chemistry; reduce the use of hazardous materials, maximize energy efficiency during the product's lifetime, and promote the recyclability or biodegradability of defunct products and factory waste. Research continues into key areas such as making the use of computers as energy-efficient as possible, and designing algorithms and systems for efficiency-related computer technologies.

Green IT & Green by IT - http://www.inrialpes.fr/82626070/0/fiche___actualite/&RH=ACCUEIL

Les « Green IT » regroupent les équipements et services informatiques qui visent à optimiser leur consommation d'énergie, comme par exemple les data centres qui mutualisent les ressources informatiques. Quant aux technologies « Green by IT », il s'agit d'applications permettant de réduire l'impact environnemental par l'utilisation de technologies informatiques.

Baroudi, C., Hill, J, Reinhold, A, Green IT For Dummies, For Dummies, 2009. ISBN:9780470386880

Green technology is not only good for the environment; its also good for your bottom line. If your organization is exploring ways to save energy and reduce environmental waste, Green IT For Dummies can help you get there. This guide is packed with cost-saving ways to make your company a leader in green technology. The book is also packed with case studies from organizations that have gone green, so you can benefit from their experience. Youll discover how to: Perform an energy audit to determine your present consumption and identify where to start greening Develop and roll out a green technology project Build support from management and employees Use collaboration tools to limit the need for corporate travel Improve electronic document management Extend hardware life, reduce data center floor space, and improve efficiency Formalize best practices for green IT, understand your companys requirements, and design an infrastructure to meet them Make older desktops and lighting fixtures more efficient with a few small upgrades Lower costs with virtual meetings, teleconferences, and telecommuting options Reduce your organizations energy consumption Youll also learn what to beware of when developing your green plan, and get familiar with all the terms relating to green IT. Green IT For Dummies starts you on the road to saving money while you help save the planet.

II. Le coin des spécialistes

Ouvrages

Frangiskatos D., Ghassemian M., Gan D. *Technology Perspective: Is Green IT a Threat to IT Security?* Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, Information Security and Digital Forensic, Springer, volume 41, 2010, ISSN: 1867-8211 (Print)
Industries are pushed by the regulations to reduce the CO2 footprint of their production lines. According to the latest statistics 3% of the CO2 footprint is generated by the IT industry. Currently a high percentage of the information being accessed by the users is produced and managed centrally. With the growth of data generation by users, e.g. social networking and YouTube websites, the storing and managing of the data will demand more energy on the networks. One of the solutions to reduce the energy consumption in ICT is introduced by virtualisation technology. While virtualisation can help to reduce the energy consumption, it has introduced other complexities to the environment, such as scalability, resource management, security and management. This paper focuses on the security issues created by the use of virtualization technology which is being promoted to make computing Green. We also aim to highlight the system vulnerabilities which are a direct result of pushing computing to become greener by using virtualisation technology. We discuss the research challenges and directions needed to be further investigated in this field. **Full text accessible depuis l'Inria** http://www.springerlink.com/content/q1rj404m3v421407/

Christophe Corne, Pénélope Guy, James Pravia, Adrien Porcheron, *Green IT - Les meilleures pratiques pour une informatique verte*, Dunod, 2009.
La consommation énergétique des dispositifs informatiques représente aujourd'hui environ 10 % de la consommation globale d'un pays occidental et cette proportion augmente rapidement. Le Green IT, c'est-à-dire la réflexion qui va de la maîtrise de la dépense d'énergie au recyclage des déchets informatiques, est maintenant considéré comme un enjeu majeur pour les années à venir. Cet ouvrage est un outil de prise de conscience et de réflexion sur les problématiques de développement durable appliquées aux systèmes d'information des entreprises. Il offre une grille de réflexion et décrit les étapes-clé d'un plan d'action.

Velte, T., Velte. A, Elsenpeter, R. *Green IT: Reduce Your Information System's Environmental Impact While Adding to the Bottom* **,** McGraw Hill, 2008, ISBN:0071599231

This groundbreaking work offers a complete roadmap for integrating environmentally sound techniques and technologies into your Information Systems architecture. *Green IT* explains how to adopt a business-driven green initiative and provides a detailed implementation plan. You will find strategies for reducing power needs, procuring energy from alternative sources, utilizing virtualization technologies, and managing sustainable development. Case studies highlighting successful green IT projects at major organizations are included. Keep your IT department and your organization in the green--both environmentally and financially--with help from this comprehensive guide.

Fabrice Flipo, Anabelle Boutet, Laura Draetta, François Deltour *Écologie des infrastructures numériques*, Hermès-Lavoisier, 2007.
Comme les autres équipements techniques, les infrastructures numériques consomment de l'énergie, produisent des déchets et font l'objet d'une maintenance. Cet ouvrage fait le point sur les connaissances dans ce domaine de consommation d'énergie souvent mal connue et s'interroge sur une meilleure façon de la gérer. Ecologie des infrastructures numériques analyse les dispositifs et les réglementations mis en place pour mieux maîtriser la production de déchets du secteur des TIC et étudie leurs conséquences sur les modes de fabrication. Ce livre compare la gestion de la consommation d'énergie des infrastructures numériques en France, Italie et Sénégal et analyse les évolutions institutionnelles de ces pays dans ce domaine, au regard des enjeux du développement durable et des objectifs initiaux des réglementations.

Hilty, L. Seifert, E., Treibert, R. *Information systems for sustainable development*, Idea Group Publisking, 2005.
Information and Communication Technologies (ICT) bring about new opportunities as well as new risks for the goal of sustainable development. This book focuses mainly on the opportunities that show how information systems can help society to approach sustainable development, that is, to reach a kind of economic activity that is compatible over the long run with human and social welfare, and with nature. Even after the first UN World Summit on the Information Society in Geneva 2003, the relationship between issues of the global information society and of sustainable development is not being discussed adequately. It seems that the interdisciplinary and international research in this field is just beginning. However, there have been large projects to develop information systems that contribute to sustainable development in recent years, most of them on a national level in European countries. This book gives an overview of the background and the current state of these efforts in presenting the basic principles of such information systems and giving practical examples. **Accessible en ligne**
http://www.dss.dpem.tuc.gr/pdf/Information%20Systems%20for%20Sustainable%20Development.pdf

Thèses

Wallerius, J. ; Zakrisson, M. *Green Supply Chain Management in Thailand : An Investigation of the Use in the Electrical and Electronics Industry,* Linköpings Universitet, Sweden, 2010. http://liu.diva-portal.org/smash/record.jsf?pid=diva2:303331

The objective with this thesis is to clarify the advantages - both economic and environmental - that companies in the Thai electronic manufacturing industry can draw from managing their supply chain and adding a green aspect to it. This through investigations of the concept known as Green Supply Chain Management (GSCM). The research will assist companies with scarce knowledge of green supply chain management in making decisions and priorities in that area. Semi-structured interviews were performed on sight in Bangkok, Thailand and surrounding region. These provided insight and

knowledge of the situation and today-state regarding environmental awareness and GSCM implementation within the Thai Electrical and Electronics Industries. Interviews were performed with representatives and experts from different sectors – from universities, industry and supporting agencies and serve as the foundation for the research. A model has been developed out of previous research and findings that could suit the Thai industry. This model can be seen as guidelines in the work towards becoming green and aims at continuous improvement of the organizations environmental performance. In Thailand today companies do not see the benefits of themselves review their organizations environmental impact or developing in this area. Environmental awareness among the public is low and the lack of demand for green products result in few drivers for companies to become green. Also the lack of proper legislation and compliance audits are part of the problem. Missing environmental education and knowledge are extensive and improvements needed. The concept of GSCM is not wide spread but popularity is increasing steadily. Some environmental initiatives are though performed in the industry but not under the name of the concept. Customer demands, legislation and education should be the main focus areas for developing the industry. From the today state at a very basic low much is to be done. Fear of large investments, cost and the lack of knowledge are obstacles to the development. This research shows that these concerns are to be avoided. And by following the model in this thesis companies can find proper knowledge in the area of GSCM. Concluded is that with understanding of the concept and proper implementation from the right knowledge Thai companies can gain great advantages in the future - both economical and environmental.

Diaz-Rainey, I. *Energy policy and the take up of "Green" energy innovations : three empirical studies on induced diffusion,* University of East Anglia, 2008.

This research contributes to a better understanding of how, if at all, different policy instruments, market structures and regulatory regimes can engender the increased use of green energy innovations. From a policy perspective, this focus arises from the growing importance of green energy innovations in helping to tackle concerns about rising fossil fuel costs and global warming. From an academic perspective, there has been a good deal of work on how 'governments can stimulate the development of new,innovations (induced innovation) but only limited and disparate contributions on how government can engender the greater use of existing innovations (induced diffusion). This research, therefore, enhances the academic understanding of induced diffusion by, inter alia, providing a generic definition for induced diffusion; synthesising academic contributions which fall under the definition of induced diffusion; and by conducting empirical research that addresses identified gaps in the understanding of induced diffusion. Methodologically, this research project can best be described as a 'policy thematic interdisciplinary three-study multi-method' thesis that takes its theoretical grounding from economics, environmental studies, finance, and marketing and management. Hence, following a number of dimensional choices, simplifying assumptions, and definitions, the broad-ranging policy and academic objectives of the thesis are tackled by having a focused research strategy that is concentrated on three empirical studies. The three studies are concerned with: (1) the take-up and potential of domestic green energy tariffs in the UK; (2) the patterns of international wind energy diffusion; (3) the adoption of household energy savings technologies in the UK. The findings of the thesis are multip!e and range from those of academic interest to those of policy interest or both. For instance, both the first and the last study highlight the importance of understanding adopter environments (market structure, information problems, consumer behaviour) if credible policy recommendations are to be made. Furthermore, an important academic contribution comes in the second study, where the results obtained raise the possibility that patterns of diffusion under induced diffusion may not in fact be'S' shaped.
http://ethos.bl.uk:8080/OrderDetails.do?did=8&uin=uk.bl.ethos.502164

Articles dans des revues à comité de lecture

Leonhardt, P. *Green ICT the concepts, opportunities and realities*, **Journal of the Institute of Telecommunications professionals**, vol. 4, pp. 38-43, 2010. ISSN : 1755-9278. The term green ICT has evolved along with the increasing awareness and concern over the environment. Peter Leonhardt examines the concepts within green ICT, and identifies those which provide business opportunities, making them sustainable, widely adopted and, therefore, leading to lasting environmental benefit.

Paretti, MC. Richter, DM., McNair LD. *Sustaining interdisciplinary projects in Green engineering : teaching to support distributed work***. International Journal of Engineering education**, vol. 26, n°2, pp. 462-469, 2010. Design projects associated with sustainability efforts often require interdisciplinary student teams to address technical, social, and environmental concerns. While educators are increasingly seeking to understand and actively teach interdisciplinary collaboration skills, less attention has been given to the structure and context of such teams. In this paper, we draw on prior research to analyze interdisciplinary teams as sites of distributed work. Using frameworks that identify key characteristics of co-located and distributed work, we identify key factors in interdisciplinary design teams that may inhibit collaboration. We conclude with strategies for faculty to help sustain such teams through concrete course management practices and through explicit learning outcomes that can help students transfer teaming skills learned in this environment to new projects.

Amsel, N., Tomlison, B. *Green Tracker: A Tool for Estimating the Energy Consumption of Software* April 12–13, 2010, Atlanta, GA, USA**, ACM** 978-1-60558-930-5/10/04.
The energy consumption of computers has become an important environmental issue. This paper describes the development of Green Tracker, a tool that estimates the energy consumption of software in order to help concerned users make informed decisions about the software they use. We present preliminary results gathered from this system's initial usage. Ultimately the information gathered from this tool will be used to raise awareness and help make the energy consumption of software a more central concern among software developers.
http://delivery.acm.org/10.1145/1760000/1753981/p3337-amsel.pdf?key1=1753981&key2=7025845721&coll=GUIDE&dl=GUIDE&CFID=90479069&CFTOKEN=37691695

Ruth, S..*Green IT More Than a Three Percent Solution?* **Internet Computing, IEEE** , July-Aug. 2009 , Volume: 13 Issue:4 , On page(s): 74 - 78 ISSN: 1089-7801
IT infrastructure is definitely going green. From significant new regulations for IT equipment disposal to stringent energy-efficiency specifications for PCs and monitors to national standards for data center power savings, Green IT is an "in" topic. But many problems are unsolved. Information and communications technology (ICT) infrastructure accounts for roughly 3 percent of global electricity usage and the same percentage of greenhouse gasses (GHGs), but it seems to have a far greater role in the green debate than that. Many of the solutions being introduced for reducing the carbon footprint via more efficient energy use worldwide are heavily dependent on IT - for example, improvements in the power grid, "energy-smart" buildings and cities, and so on. Here, the author examines green issues and solutions in IT infrastructure and give a brief history behind green computing. . **Full text accessible depuis l'Inria**
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5167271

Murugesan, S. *Harnessing Green IT: Principles and Practices***, IT Professional IEEE Educational Activities Department** , Volume 10 , Issue 1 (January 2008) Pages: 24-33, 2008. ISSN:1520-9202

In addition to moving itself in a greener direction and leveraging other environmental initiatives, IT could help create green awareness among IT professionals, businesses, and the general public by assisting in building communities, engaging groups in participatory decisions, and supporting education and green advocacy campaigns. Along these lines, tools such as environmental Web portals, blogs, wikis, and interactive simulations of the environmental impact of an activity could offer assistance. Green IT is an economic, as well as an environmental, imperative. Greening IT is and will continue to be a necessity, not an option. Green IT represents a dramatic change in priority in the IT industry. So far, the industry has been focusing on IT equipment processing power and associated equipment spending. It's not been concerned with other requirements such as power, cooling, and data center space. However, going forward, the IT industry will need to deal with all of the infrastructure requirements and the environmental impact of IT and its use. The challenges of green IT are immense; however, recent developments indicate that the IT industry has the will and conviction to tackle our environmental issues head-on. The IT sector and users must develop a positive attitude toward addressing environmental concerns and adopt forward-looking, green-friendly policies and practices. **Full text accessible depuis l'Inria**
http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=4446673

Communications avec actes

Harmon, RR. Auseklis, N. *Sustainable IT services : assessing the impact of green computing practices*, **Proceedings of PICMET 09** – Technology Management in the Age of Fundamental Change, vols. 1-15, pp. 1664-1674, 2009.
Green computing refers to the practice of using computing resources more efficiently while maintaining or increasing overall performance. Sustainable IT services require the integration of green computing practices such as power management, virtualization, improving cooling technology, recycling, electronic waste disposal, and optimization of the IT infrastructure to meet sustainability requirements. Recent studies have shown that costs of power utilized by IT departments can approach 50% of the overall energy costs for an organization. While there is an expectation that green IT should lower costs and the firm's impact on the environment, there has been far less attention directed at understanding the strategic benefits of sustainable IT services in terms of the creation of customer value, business value and societal value. This paper provides a review of the literature on sustainable IT, key areas of focus, and identifies a core set of principles to guide sustainable IT service design.

Anne-Cécile Orgerie, Laurent Lefèvre, and Jean-Patrick Gelas. *"Save Watts in your Grid: Green Strategies for Energy-Aware Framework in Large Scale Distributed Systems"*, **Proceedings of ICPADS 2008 : The 14th IEEE International Conference on Parallel and Distributed Systems**, Melbourne, Australia, December 2008
While an extensive set of research project deals with the saving power problem of electronic devices powered by electric battery, few have interest in large scale distributed systems permanently plugged in the wall socket. However, a rapid study shows that each computer, member of a distributed system platform, consume a substantial quantity of power especially when those resources are idle. Today, given the number of processing resources involved in large scale computing infrastructure, we are convinced that we can save a lot of electric power by applying what we called green policies. Those policies, introduced in this article, propose to alternatively switch On and Off computer nodes in a cleverway.

Fabrice Flipo, *Infrastructure numérique et environnement : L'impossible domestication de l'effet rebond,* Papier présenté lors du **Colloque international "Services, innovation et développement durable"**,Poitiers (France), 26-28 mars 2008.
Les technologies de l'information se généralisent dans un grand nombre de domaines de la vie collective et domestique. Entre 1993 et 2000, le nombre de PC par habitant terrestre a augmenté de 181%. En avril 2002, le milliardième PC a été livré. Le nombre de PC dans le monde devrait être porté à 1,3 milliard d'ici 2010, contre près de 900 millions aujourd'hui. Des pays comme l'Indonésie s'équipent au rythme de +40% par an. Le Mexique devrait atteindre 46% de la population possédant un ordinateur avant la fin de la décennie. Un total de 471 millions de téléphones portables on été vendus dans le monde en 2003, environ 630 millions en 2004 et plus de 800 millions en 2005. Le nombre d'abonnements à la téléphonie mobile a dépassé les 2,6 milliards en 2006, la moitié des Terriens pourrait être client chez un opérateur mobile avant 2010. Les puces envahissent notre quotidien : automobiles, PDA, lecteurs MP3, etc. Les technologies de l'information et de la communication (TIC) véhiculent une image de légèreté et d'absence de friction. Les coûts de transaction et les frais de transport sont ramenés quasiment à zéro. Leur effet sur l'écologie planétaire semble être nul. Mieux, elles permettent d'observer la planète et ses évolutions de loin, sans avoir l'air d'y toucher. Est-ce réellement le cas ?
http://www.ecoinfo.cnrs.fr/IMG/pdf/L_impossible_domestication_de_l_effet_rebond.pdf

Séminaires / présentations

Askren, M. *Greening IT: Sustainability in the Data Center and Across Campus*, 05/13/2009
Enterprise computing is a major power consumer on campus. This session will provide an overview of sustainability and address its role as an integral part of IT engagement and planning. It will cover one institution's commitment to sustainability through a university-wide series of innovative green efforts to reduce its environmental impact and preserve resources and will include action items specifically related to IT efficiency. (slides)
http://www.educause.edu/Resources/GreeningITSustainabilityintheD/171605

Harper, S.,Green by ICT : Global progress in Harnessing the power of ICT for energy efficiency and climate, Intel , 4th Sustainability summit, New Delhi, Asia, 2009.
http://www.sustainabledevelopment.in/events/4thsustainabledevelopment-2009_Presentations/Day1/Stephen_Harper.pdf

Pauletto, G. *Informatique et environnement : le carbone est-il soluble dans le silicium ? Centre des Technologies de l'Information,* République et Canton de Genève, 26.06.2008.
http://ot.geneve.ch/partenariat/IMG/pdf/GreenIT.pdf

Mingay, S. *Green IT: The New Industry Shock Wave, 7 décembre 2007.* Gartner RAS Core Research Note G00153703
Environmental sustainability and climate change will present substantial opportunities and important risks for all stakeholders in the IT industry in 2008 and beyond. This Special Report examines the issue of "green IT," predicts how it will evolve and recommends how IT organizations should respond.
http://www.netdesign.dk/manedens-tema/telepresence/green-it-the-new-industry.pdf

Call for papers

1rst-International Green Computing Conference, august 15-18, 2010, Chicago. http://www.green-conf.org/

The First International Green Computing Conference, Technically Co-Sponsored by IEEE Computer Society, addresses key issues and topics related to energy efficiency in computing and promoting environmentally friendly computer technologies and systems. The conference aims to provide a forum to a wide audience for discussing, sharing and investigating the state-of-the-art for all aspects of green computing, which include energy-efficient use of computers, design of algorithms and systems for environmentally-friendly computer technologies, and wide range of related topics. The conference will publish papers pertaining to hardware and software systems, algorithms, applications as well as power, energy and temperature related research areas of current importance to researchers, engineers and practitioners. The conference will hold forums and workshops on hot topics related to how the carbon footprint of computing can be reduced and how computers can contribute to the environment and overall well being of the planet.

Green IT Track, Interop, 18-22 octobre 2010, New York
http://www.interop.com/newyork/conference/green-it.php
Awareness of Green IT is increasing, driven by corporate wide greening efforts as well as practical IT concerns like running out of space, power, or budget. As a result, IT professionals are tasked with formulating and enacting a Green IT strategy to harvest the environmental and financial benefits of becoming more eco-conscious. This track offers both a strategic view of Green IT into the future, and practical steps IT professionals can take to move from Green IT awareness to action

ICGREEN 2010 – International Conference on Green Computing , 29-31 july, Athens, Greece.
http://www.icgreen.innov.org/call_for_papers.asp

The International Conference on Green Computing, ICGREEN 2010, focuses on the role of computing, or information technology, to accomplish more eco-responsible behavior of people. The conference aims at bringing together researchers and practitioners who are interested in both computing and the possible impact of computing on the environment, and who are committed to work on the development of eco-effective technologies and technology applications. From ‘Silent Spring in the 60’s’ to the current United Nations Millenium Declaration, people and countries have been increasingly encouraged to achieve better management, conservation and sustainable development of all resources provided by nature. Although views may differ, most scientists would attribute a key role to technology in achieving this. Information technology, in particular, can provide monitoring facilities, control systems, intelligent construction models and so on. From a scientific point of view we especially welcome input considering the promise that Service-Oriented Architectures hold as an enabler of sophisticated mechanisms that would support a transition to or monitoring of environment-friendly solutions. The four directions in which we are envisioning the impact of the conference are: (i) ICT to create awareness for 'green behavior'; (ii) ICT to support 'green behavior'; (iii) ICT to allow for analyzing social or technical systems with respect to 'green properties'; (iv) ICT as a sector itself to become 'greener'.

E2GC2 : Energy Efficient Grids, Clouds and Clusters Workshop25-29 October 2010 in Brussels, Belgium. Submission deadline : July 16, 2010

http://www.ens-lyon.fr/LIP/RESO/e2gc2_2010/

The question of energy savings is a matter of concern since a long time in the mobile distributed systems. However, for the large-scale non-mobile distributed systems, which nowadays reach impressive sizes, the energy dimension just starts to be taken into account. The E2GC2 workshop will focus on Green and energy efficient approaches, ideas, practical solutions, experiments and frameworks dedicated to medium and large scale distributed infrastructures like Grids, clouds and clusters.

Green IT - Publication: January/February 2011 Submission deadline: 1 July 2010
http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=05466008

Green IT is the study and practice of designing, manufacturing, and using computers, servers, monitors, printers, storage devices, and networking and communications systems efficiently and effectively with minimal impact on the environment. It's also about environmental sustainability—using IT to support environmental initiatives and to help create green awareness. Green IT is a hot topic due to an increasing awareness of the harmful effects of gas emissions, new stringent environmental legislation, concerns about electronic waste disposal practices that damage our environment, and corporate image concerns that are pushing businesses and individuals to go green. We can make a difference by greening IT.

FGCS - Future Generation Computer Systems -http://www.elsevier.com/locate/future
Special Issue on Green Computing - Computing is not only a high-tech one, but also a high-energy-consuming one. Inspired by the need to take adequate actions against humankind's rapidly destroying the conditions for prosperity and profit, green computing with the aiming of energy costs and CO2 emissions' reducing, and environment protecting, has become a potential research focus for all the information and communication technology designers. Green computing is the environmentally responsible use of computers and related resources. Such practices include the implementation of energy-efficient central processing units (CPUs), servers and peripherals as well as reduced resource consumption and proper disposal of electronic waste. The objective of this special issue is to present a collection of high-quality research papers that report the latest research advances in the area of green information and communications technologies, which mainly includes the development of truly sustainable (eco-effective) information technologies and related solutions.
Manuscript due date: November 1, 2010
Final papers: May 10, 2011
Tentative Publication Schedule: 4th Quarter, 2011

Autres « Call for Papers » - Voir aussi : http://sites.google.com/site/greencomputingproject/cfp

http://www.greenit-conferences.org/

III. Outils et applications

Equipes et Projets de recherche

RESO – Réseaux haut débit, protocoles et services Equipe-Projet INRIA –ENS Lyon -LIP- http://www.ens-lyon.fr/LIP/RESO/web/

L'équipe-projet RESO étudie le problème de l'utilisation efficace des réseaux très haut débit dans le contexte des grilles haute performance. RESO propose de nouvelles solutions en termes de protocoles, services et logiciels pour assurer un transport de bout en bout performant aux applications distribuées sur des infrastructures longues distance hétérogènes et à hautes capacités. L'objectif visé est d'améliorer les performances spécifiques de flux individuels mais aussi le taux d'utilisation de la ressource "réseau".

Axes de recherche

- Optimisation du sous-système de communication : librairies de communications hautes performances, optimisation de piles protocolaires IP, environnements actifs hautes performances, cluster networking.
- Transport haute performance pour réseaux IP longue distance : qualité de service de bout en bout, protocoles de transport haute performance, multicast fiable.
- Services Réseaux avancés pour la grille : Mesure et Estimation de performance de bout en bout, grille active, gestion dynamique de la qualité de service IP, sécurité distribuée pour la grille.

Dans le domaine du GreenIT l'équipe RESO travaille notamment sur la prise en compte de la dimension énergétique des environnements logiciels, protocoles et services dans les infrastructures distribuées à grande échelle (centres de donnés, Grilles, Nuages et Internet du futur). Récemment l'équipe RESO a mené l'action de recherche incitative INRIA GREEN-NET (http://www.ens-lyon.fr/LIP/RESO/Projects/GREEN-NET/) et mène un groupe de travail dans l'action européenne COST IC804 sur « *Energy Efficiency in Large Scale Distributed Systems* (http://www.cost804.org/). Actuellement, l'équipe RESO participe au nouveau consortium sur les réseaux verts *GreenTouch* (http://www.greentouch.org/) et aux activités du projet européen *PrimeEnergyIT*.

Homes – Schneider Electric -http://www.schneider-electric.com/sites/corporate/fr/presse/dossiers/projet-homes.page

Le projet **« Habitat et bâtiment Optimisé pour la Maîtrise de l'Energie et les Services » (HOMES)** de Schneider Electric a été retenu par l'AII. Sa finalité : aménager les systèmes de distribution électrique et de contrôle des bâtiments afin d'optimiser la gestion des énergies. Son ambition : réduire la consommation énergétique des bâtiments de 20%.
Cinq autres projets ont été retenus par l'AII. L'organisme créé en 2005 à la demande du président de la République française, vise à renforcer la compétitivité de l'industrie en soutenant des programmes de recherche innovants et porteurs.

EcoInfo - http://www.ecoinfo.cnrs.fr/spip.php?article96

EcoInfo est un groupe de travail, créé au printemps 2006, par un très petit noyau d'ingénieurs en informatique (spécialisés en systèmes, réseaux et serveurs de calcul).
Thématiques :

- Impact environnemental des équipements informatiques tout au long du cycle de vie des équipements (de l'extraction des matières première au traitement de fin de vie)
- Impact sociétal pendant la phase de production des équipements
- Impacts environnementaux des développements / maintenance de codes (en cours de démarrage ..)

Objectifs :

- formuler des recommandations aux acheteurs/gestionnaires/DSI/utilisateurs/etc. pour l'ensemble des phases du cycle de vie des équipements (de l'achat (ou non-achat) au traitement de fin de vie) et par rapport aux aspects logiciel (en cours)
- proposer des articles de synthèse sur différents sujets reliés à nos thématiques et sensibiliser les différents publics concernés (utilisateurs / décideurs),

STEEP – Sustainability, Transition, Environment, Economy and local Policy - http://steep.inrialpes.fr/

STEEP is an interdisciplinary research team devoted to systemic modelling and simulation of the interactions between the environmental, economic and social factors within the context of transition to sustainability at local (sub-national) scales.
Our goal is to develop decision-making tools to support decision makers in the implementation of this transition by developing simulation, optimization and visualization softwares. In other words, our objective is to set up some mathematical and computational tools allowing to provide some parts of an answer top the challenges *how to operate the sustainable development at local scales?* and *which local governance for the environmental public policies ?*

Sociétés commerciales

DotGreen - http://www.dotgreen.fr/ewb_pages/p/page-accueil.php

L'équipe de consultants de Dotgreen a mis en place une méthodologie spécifique aux projets Green IT. Dotgreen est une jeune PME innovante éditrice de logiciels et prestataire de services dans le domaine de la virtualisation appliquée aux systèmes d'information des entreprises, des collectivités ou de l'administration.

DoTRiver - http://www.dotriver.eu/

DotRiver propose une solution éco-innovante de virtualisation et centralisation des postes de travail (bureau virtuel complet). DotRiver ne vend pas de matériels**,** ni de logiciels (il n'est pas possible d'être juge et parti), mais DotRiver vous garantit, enfin, le bon fonctionnement de l'ensemble de la bureautique poste de travail. L'ensemble des composants de nos solutions sont exclusivement des solutions, logiciels, programmes "Open Sources". Depuis plus de 5 ans, notre Recherche et Développement a sélectionné, validé l'ensemble des logiciels qui nous permettent de pouvoir enfin garantir le bon fonctionnement de la http://greenit.lemondeinformatique.fr/ bureautique. DotRiver s'implique également au quotidien dans les projets visant à : réduire les trop nombreuses fractures numériques, réduire le volume des déchets électroniques et ne pas investir massivement dans des matériels "surdimentionés" si couteux à produire d'un point de vue environnemental, augmenter la sécurité, la maitrise et surtout l'usage de l'informatique

EOLAS - http://www.businessdecision-eolas.com/

Spécialiste des services en ligne managés 24/7, Internet e-commerce, e-business, e-administration et e-communication. Nous nous développons avec une quadruple compétence : conception et développement d'applications, hébergement, webmarketing et centre de services dédiés. Fort de ses expériences, Business & Decision Eolas développe aujourd'hui une expertise très pointue dans le domaine de l'Internet, permettant de répondre à des besoins très spécifiques, mais également plus globaux adaptés à chaque client.

GreenIT : sustainable information technology http://www.greenit.net/

Eco-Efficiency and Eco-Innovation for IT GreenIT® is the leading advisor in sustainable Information and Communications Technology. GreenIT® provides services to enable clients to drive measurable financial and environmental benefits from programs for IT Eco-Efficiency and IT Eco-Innovation**.** GreenIT® is a progressive consultancy that serves clients in three primary markets:

- Leaders in IT, Finance, Marketing, and Corporate Social Responsibility actively involved in sustainability initiatives.
- Real Estate Professionals looking to make commercial property more competitive and environmentally responsible.
- IT System and Equipment Providers and Distributors seeking to understand and communicate the sustainability attributes of their products.

Panasonic - http://panasonic.net/csr/environment/case/02.html

Using "Green IT" Innovation at Offices to Upgrade Environmental Sustainability Management and Improve Productivity

Associations / Sociétés savantes / Communautés

ADEC –http://www.adec.fr/fr/green_it/enr-energies-nouvelles-renouvelables.html

Les Technologies de l'Information apparaissent, de plus en plus, comme un outil transversal indispensable au développement durable : en effet, si les matériels informatiques constituent une préoccupation pour l'avenir (quantités croissantes, renouvellement fréquent…), la contribution des TIC aux démarches de préservation de l'environnement est de plus en plus évidente : échanges virtuels facilités, importance des systèmes informatiques dans les technologies propres… Des perspectives de développement sont à explorer dans ces différentes directions.

ADEME - http://www2.ademe.fr/servlet/getDoc?id=11433&m=3&cid=96

L'ADEME participe à la mise en œuvre des politiques publiques dans les domaines de l'environnement, de l'énergie et du développement durable. Afin de leur permettre de progresser dans leur démarche environnementale, l'agence met à disposition des entreprises, des collectivités locales, des pouvoirs publics et du grand public, ses capacités d'expertise et de conseil. Elle aide en outre au financement de projets, de la recherche à la mise en œuvre et ce, dans les domaines suivants : la gestion des déchets, la préservation des sols, l'efficacité énergétique et les énergies renouvelables, la qualité de l'air et la lutte contre le bruit.

OECD – http://www.oecd.org/

OECD brings together the governments of countries committed to democracy and the market economy from around the world to:

- Support sustainable economic growth
- Boost employment
- Raise living standards
- Maintain financial stability
- Assist other countries' economic development
- Contribute to growth in world trade

The Organisation provides a setting where governments compare policy experiences, seek answers to common problems, identify good practice and coordinate domestic and international policies.

The Green Grid - http://www.thegreengrid.org/

The data center has changed considerably through the decades as the evolution of information technology has enabled it to become the critical nerve center of today's enterprise. The number of data center facilities has increased over time as business demands increase, and each facility houses a rising amount of more powerful IT equipment. Data center managers around the world are running into limits related to power, cooling, and space - and the rise in demand for the important work of data centers has created a noticeable impact on the world's power grids. The efficiency of data centers has become an important topic of global discussion among end-users, policy-makers, technology providers, facility architects, and utility companies. When a standard set of measurements are adopted by the industry, it will be easier for end-users to manage their facilities and equipment to achieve optimal energy efficiency. The Green Grid is a global consortium of IT companies and professionals seeking to improve energy efficiency in data centers and business computing ecosystems around the globe. The organization seeks to unite global industry efforts to standardize on a common set of metrics, processes, methods and new technologies to further its common goals.

GreenIT - http://www.greenit.fr/

Avec plus de 30.000 professionnels qui s'y connectent chaque mois, GreenIT.fr est le site de référence du Green IT et des TIC durables en France. Les contributeurs de GreenIT.fr sont tous des spécialistes du domaine qui partagent leurs réflexions et leurs découvertes avec les autres membres de la communauté. Notre objectif est d'accélérer la diffusion des connaissances sur le sujet pour aider les entreprises et les particuliers à réduire l'empreinte environnementale des technologies de l'information et de la communication.

Le Monde Informatique Espace Green IT http://greenit.lemondeinformatique.fr/

ZDNET - http://www.zdnet.fr/blogs/greenit/

Blog - **GreenIT** par Fred Bordage, « Après avoir suivi l'émergence des logiciels libres, des SOA, et du web 2.0 en tant que journaliste, consultant et directeur technique, je suis aujourd'hui expert indépendant Green IT. J'anime la communauté GreenIT.fr »