Cloud Going Mainstream

Executive Summary

Cloud adoption has increased 70% from last year, with 71% of companies in Germany pursuing a hybrid cloud strategy and on-premises private cloud spending projected to increase by 47% over the next two years. But many still lack cloud maturity with only 32% of German companies pursuing Optimized, Managed, or Repeatable cloud strategies. Obstacles to achieving greater cloud maturity include skill gaps, legacy siloed organization structures and IT/LOB misalignment.

The greater the level of cloud maturity the better the level of business outcomes, including increased revenue and more strategic allocation of IT budget. The most mature cloud organizations are defined by their use of DevOps, hybrid and multi-provider cloud, microservices, containers (Docker), and cloud-based Internet of Things (IoT).

Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
Study Methodology

IDC’s 2016 CloudView Survey interviewed Director-level and above respondents from a global sample of 11,350 executives knowledgeable about IT decisions. Of this sample the full survey was conducted on the 6,159 respondents, including 200 German respondents, actively using cloud for multiple workloads.

Survey Participant Profile – Germany

Q: Which of the following best represents your job title?

Q: Approximately how many employees are there in your entire organization?
Cloud Adoption Is Accelerating in Germany

Use of Public or Private Cloud

- **2015**
  - No interest/don’t know: 24%
  - Educating/evaluating: 18%
  - Firm plans to implement: 21%
  - Currently using: 37%

- **2016**
  - No interest/don’t know: 15%
  - Educating/evaluating: 13%
  - Firm plans to implement: 9%
  - Currently using: 63%

Q: How would you best describe your organization’s current or near-term plans to use public cloud or private cloud solutions to support production workloads and services?

63% of German organizations use some form of cloud, representing a 70% increase from last year.

N=336. Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
Adoption in Germany Is Relatively Evenly Split Between Public and Private Cloud

Current/Near-Term Cloud Adoption Plans

<table>
<thead>
<tr>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>No interest/don’t know</td>
<td>24%</td>
</tr>
<tr>
<td>Educating/evaluating</td>
<td>15%</td>
</tr>
<tr>
<td>Firm plans to implement</td>
<td>11%</td>
</tr>
<tr>
<td>Currently using</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>55%</td>
</tr>
</tbody>
</table>

German organizations expect to increase on-premises private cloud spending by 47% over the next two years.

Q: How would you best describe your organization’s current or near-term plans to use public cloud or private cloud solutions to support production workloads and services?

N=336. Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
Most German Cloud Adopters Are Using Some Form of Hybrid Cloud

Have a Hybrid Cloud Strategy

Q: Do you think your organization has a hybrid cloud strategy today?

- 29% No
- 71% Yes

Characteristics of Hybrid Cloud Adopted

- Subscribing to multiple external cloud services: 53%
- Using a mix of public cloud services and dedicated assets: 51%
- Managing all IT under the same service catalog, SLAs, etc.: 44%
- Uniting 2+ distinct workloads in an automated configuration: 37%
- IT architecture that unites configuration, provisioning, and management: 36%
- Supporting portable workloads and automated bursting: 35%

Q: Which of the following potential characteristics of a hybrid cloud has your organization adopted?

N=200. Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
Private Cloud Implementations Span a Broad Range of Deployment Options

Q: Please describe your organization’s current or near-term plans for each of the following private cloud deployment options

- **IT managed on-premises**
  - Not currently interested: 10%
  - Evaluating, but have no firm plans: 25%
  - Firm plans to implement within 12 months: 22%
  - Currently using: 44%

- **Remotely managed**
  - Not currently interested: 7%
  - Evaluating, but have no firm plans: 25%
  - Firm plans to implement within 12 months: 21%
  - Currently using: 47%

- **Hosted (pay per use)**
  - Not currently interested: 20%
  - Evaluating, but have no firm plans: 21%
  - Firm plans to implement within 12 months: 58%

N=116 (EMEA Respondents). Base: Respondents indicated organization currently using/have plan to use hosted private cloud architectures. Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
IDC Categorizes Organizations Using Five Levels of Cloud Adoption

Lower Maturity

Ad Hoc
- Beginning the process to increase awareness of cloud technology options
- Turning to cloud because of immediacy of need, often unauthorized

Opportunistic
- Experimenting with short-term improvements in access to IT resources through cloud
- Consider cloud for new solutions or isolated computing environments

Repeatable
- Enabling more agile access to IT resources through standardization and implementation of best practices
- Relying on self-service portals to access cloud services

Greater Maturity

Managed
- Implementing a consistent, enterprise-wide best-practices approach to cloud
- Orchestrating service delivery across an integrated set of resources

Optimized
- Delivering innovative IT-enabled products and services from internal and external providers
- Drive business innovation through transparent access to IT capability, based on value to business, and transparent cost measures

<table>
<thead>
<tr>
<th></th>
<th>Public cloud</th>
<th>Private cloud</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Using</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Ad Hoc</td>
<td>27%</td>
<td>31%</td>
</tr>
<tr>
<td>Opportunistic</td>
<td>72%</td>
<td>74%</td>
</tr>
<tr>
<td>Repeatable</td>
<td>82%</td>
<td>84%</td>
</tr>
<tr>
<td>Managed</td>
<td>87%</td>
<td>94%</td>
</tr>
<tr>
<td>Optimized</td>
<td>96%</td>
<td>89%</td>
</tr>
</tbody>
</table>

N=3,506 (EMEA respondents). Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
Most German Organizations Are Still Attempting to Optimize Their Cloud Strategies

32% of organizations have Repeatable, Managed, or Optimized cloud strategies

Cloud Maturity Level

- 24% have no cloud strategy
- 28% Ad Hoc
- 16% Opportunistic
- 13% Repeatable
- 14% Managed
- 6% Optimized

N=336. Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
More Mature Organizations Continue to Expect Cloud to Drive Strategic Outcomes

The greater the level of cloud maturity, the more organizations expect cloud to drive strategic business outcomes including increased revenue and more strategic allocation of IT budget.

Expect Cloud to Improve KPIs Over Next 2 Years

<table>
<thead>
<tr>
<th></th>
<th>Increase revenue</th>
<th>Strategic allocation of IT budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimized</td>
<td>89%</td>
<td>83%</td>
</tr>
<tr>
<td>Managed</td>
<td>66%</td>
<td>66%</td>
</tr>
<tr>
<td>Repeatable</td>
<td>56%</td>
<td>56%</td>
</tr>
<tr>
<td>Opportunistic</td>
<td>43%</td>
<td>43%</td>
</tr>
<tr>
<td>Ad Hoc</td>
<td>30%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Q: Do you expect an improvement in the following key performance indicators (KPIs) over the next 2 years based on your organization’s use of public, private, or hybrid cloud services [ability to help LOBs positively impact revenue growth, ability to fund strategic versus routine/maintenance projects]?

N=1,924 (EMEA respondents). Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
Increasing Cloud Maturity Yields Significant Benefits

Note: Solid bars in charts above indicate the KPI associated with each stage; for example it takes a Repeatable organization 53% of the time to provision new services than it takes an Ad Hoc organization.
Greater Cloud Maturity Leads to Millions of Euros in Benefits

Annual Benefit per Cloud-Based Application

- **€2.7 MILLION**
  - 13% Risk mitigation
  - 18% Enablement of IoT
  - 68% Faster time to market

- **€0.9 MILLION**
  - 9% New customers
  - 21% Open source benefits
  - 31% Infrastructure cost savings
  - 37% IT operations
  - Business process improvement

Additional revenues

Reduced costs

Source: 470 responses from 25 IDC Business Value Research studies from 2012 to 2016 covering cloud maturity levels, adoption of private cloud, implementation of private cloud and converged infrastructures in support of cloud and 35 respondents from a specialized study of Optimized/Managed cloud maturity organizations for Cisco in December, 2014 and April, 2016. Figures may not add to 100% due to rounding.
Cloud Is Enabling the Internet of Things (IoT)

Q: Has your organization deployed any cloud-based IoT (Internet of Things) applications?

Globally, 29% of cloud adopters are using cloud-based IoT applications

1) N=1,506
2) N=505 (BASE: Respondents indicated organization deployed cloud-based IoT applications)
Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
DevOps Is Widely Used in Mature Cloud Organizations

Practice DevOps for Cloud Environments

Q: Do you currently have DevOps practices in use for your cloud environments?

N=152 (EMEA respondents). Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
Microservices Architectures and Containers Are Widely Used by Mature Cloud Organizations

Q: Thinking about your organization’s ability to manage its cloud environments efficiently, please indicate whether you currently have implemented the following technologies/tools. If not, when do you expect to implement them?

- **Perform Custom Cloud Application Development Using a Microservices Architecture**
  - Optimized: 75%
  - Managed: 38%
  - Repeatable: 30%
  - Opportunistic: 16%
  - Ad Hoc: 7%

Q: How important are the following open source and standards projects to your organization’s cloud strategy?

- **Docker Containers Are Important to Cloud Strategy**
  - Optimized: 60%
  - Managed: 44%
  - Repeatable: 39%
  - Opportunistic: 33%
  - Ad Hoc: 26%

N=1,924 (EMEA respondents). Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
OpenStack Is Seen as Important and Correlated with Better Business Outcomes

56% of EMEA respondents say OpenStack is important to their cloud strategy (via open source and/or commercial distributions).

Respondents for whom OpenStack is a more important part of their cloud strategy had higher expectations for cloud to improve key KPIs than those for whom OpenStack was less important.

Q: Do you expect an improvement in the following key performance indicators (KPIs) over the next 2 years based on your organization’s use of public, private, or hybrid cloud services?

Q: How important are the following open source and standards projects to your organization’s cloud strategy? [OpenStack] (top-2 box and bottom-2 box scores shown)

- OpenStack is “important”
- OpenStack is “not important”
Mature Organizations More Likely to Consume Security over the Cloud

Method of Consuming Security in Cloud Environments – Global

<table>
<thead>
<tr>
<th>Method of Consuming Security</th>
<th>Optimized (% of respondents)</th>
<th>Ad Hoc (% of respondents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managed services, including some cloud delivery</td>
<td>50%</td>
<td>19%</td>
</tr>
<tr>
<td>Cloud delivered management of security devices, located on- or off-premises</td>
<td>40%</td>
<td>20%</td>
</tr>
<tr>
<td>Hybrid on- and off-premises deployment</td>
<td>38%</td>
<td>18%</td>
</tr>
<tr>
<td>Hosted security services: virtual appliances hosted in private clouds</td>
<td>38%</td>
<td>20%</td>
</tr>
<tr>
<td>Cloud, big data analytics, and machine learning services to support incident response</td>
<td>28%</td>
<td>4%</td>
</tr>
<tr>
<td>Security-as-a-Service consumed from a multitenant public cloud</td>
<td>24%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Security is an important concern: Globally, 48% characterize adequate security as an important inhibitor to cloud deployment.

Cloud-mature organizations are more likely to consume security over the cloud.

Q: How would you classify your consumption of security delivered from a cloud environment, either public or private?

N=1,506. Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
Mature Organizations Plan to Consume Services from Multiple Cloud Providers

The most cloud-mature organizations expect to be able to choose from multiple cloud providers based on location, policies, and governance principles and have implemented collaborative business and IT governance to do so.

Expect to Choose from Multiple Cloud Providers Based on Location, Policies, and Governance Principles

<table>
<thead>
<tr>
<th>Skill/Process</th>
<th>Expect to Choose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ad Hoc</td>
<td>40%</td>
</tr>
<tr>
<td>Opportunistic</td>
<td>46%</td>
</tr>
<tr>
<td>Repeatable</td>
<td>57%</td>
</tr>
<tr>
<td>Managed</td>
<td>63%</td>
</tr>
<tr>
<td>Optimized</td>
<td>79%</td>
</tr>
</tbody>
</table>

Implemented Collaborative Business/IT Cloud Governance Policies

<table>
<thead>
<tr>
<th>Skill/Process</th>
<th>Implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ad Hoc</td>
<td>11%</td>
</tr>
<tr>
<td>Opportunistic</td>
<td>22%</td>
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<td>Repeatable</td>
<td>32%</td>
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<td>39%</td>
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<td>Optimized</td>
<td>87%</td>
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</table>

1) N=1,764; 2) N=1,924 (EMEA respondents). (BASE: Respondents assigned to base survey).

Source: CloudView Survey, IDC, 2016. Figures may not add to 100% due to rounding.
Key Takeaways

Cloud adoption continues to grow, but few companies have mature cloud strategies in place

- 73% of German organizations are using or are planning to implement some form of cloud, a 70% increase over last year. Only 32% have Repeatable, Optimized, or Managed strategies. While this is an increase from 2015, there is still room for improvement.

Hybrid cloud is a significant part of the mix, with on-premises private cloud spending continuing to grow

- 71% of German organizations are pursuing a hybrid cloud strategy, which includes subscribing to multiple external cloud providers and using a mix of cloud and dedicated (on-premises) IT resources.
- Organizations expect to increase on-premises private cloud spending by 47% in Germany over the next two years.

Cloud adoption is driving significant benefits

- The greater the level of cloud maturity the better the level of business outcomes.
- This includes strategic business outcomes such as improved revenue growth and more strategic allocation of IT budgets, as well as tactical benefits including lower IT costs, reduced time to provision IT services, and increased ability to meet SLAs.
Key Takeaways

Cloud-mature organizations in EMEA make greater use DevOps, containers, and microservices architecture

- **100%** of Optimized organizations use DevOps for their cloud environments, compared to **11%** of Ad Hoc organizations
- Microservices architectures are used by **75%** of Optimized organizations to develop cloud apps compared to **7%** of Ad Hoc organizations
- Docker containers are an important part of **60%** of Optimized organizations’ cloud strategies, and only to **26%** of Ad Hoc organizations

The most cloud-mature organizations are using the cloud to support Internet of Things

- Globally, **62%** of Optimized organizations use cloud to support IOT, compared to **8%** of Ad Hoc organizations. Optimized organizations are also much more likely to use private or hybrid cloud for IOT

Mature organizations look to multiple cloud providers

- **79%** of Optimized organizations in EMEA expect to be able to choose between multiple cloud providers based on locations, policies, and governance principles, compared to **40%** of Ad Hoc

The majority of adopters are facing challenges to advancing in maturity

- Key obstacles include kill gaps, legacy-structured and siloed organization structures, and IT/LOB misalignment